The Builder.

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Architecture at the Royal Academy.

WE fear it can hardly be said that the architectural room at the Royal Academy is of very high interest this year. It is a rather mixed collection, and contains hardly any drawings of central and pre-eminent interest; and some of the most important designs appear to have been capriciously shunted into sidings, so as to give the collection, as a whole, even less point and interest than it might otherwise have had.

A very fine pen-and-ink drawing of the front of Messrs. Webb & Bell's Birmingham Law Courts (1,786) occupies the central place on the east wall of the room. The drawing is by Mr. Raffles Davison, and conveys very well the rich texture produced as well by the detail as by the material of the building. The process of scoring down for shadow is carried a little too far in some parts of the drawing, but the total effect as a picture is fine and luminous, and does justice to the architecture of one of the most picturesque municipal buildings of modern times. This is the only drawing one can fix upon as a specially central and conspicuous object in the room, and perhaps therefore we may most suitably pass from this to examine the other designs of a municipal class which are exhibited. Of these the most conspicuous is the large pen-and-ink drawing of Mr. Robson's "People's Palace for East London; South Front" (1,744) representing the intended completion of the building towards the Mile-End road. This shows a façade with a recessed centre with two wings. The upper portion of the centre is treated in a manner somewhat similar to the same architect's well-known building for the Institute of Painters in Water Colours in Piccadilly; broad fluted pilasters decorate the work up to a certain height, with square finials above the pilasters and mullioned and transomed windows between them; above and recessed back from this is a mass of plain walling with a strong cornice and panelled balustrade; a row of festoons decorates the wall immediately below the cornice. Behind this rises a pediment with an order of square massive pilasters or engaged columns, flanked by a cupola at each angle. The wings of the front façade are treated with a couple of square pilasters at each side above the first-floor string, each couple crowned with a rather heavy broken curved cornice. The centre portion of each wing is filled up with a bay segmental on plan, rising from the ground to about half the height of the order of pilasters. The pilaster stuck on the middle of this bay looks rather out of place and has a heavy appearance. On the ground story, on either side of the bay, is a heavy square-lined architrave, enclosing on one side an entrance door and on the other side a large empty niche. This is not very satisfactory, and is a somewhat old-fashioned way of securing symmetry on each side of the projection without any very direct reference to what we must presume are the requirements of the plan (no plan is given), the presence of the niche looking rather as if the architect was at a loss what to do with that portion of the design. The ground story in the middle portion of the front is occupied by a loggia with heavy square rusticated columns. The general effect of the design is that of solidity combined with a rather ponderous effect, the style of architecture adopted being of rather a rigid kind, not accommodating itself easily to variety or picturesqueness of treatment.

Mr. Albert J. Bolton's design for the "South-West London Polytechnic Institute" (1,736) is the perspective submitted in the competition, and on which we have before commented in noticing the competition drawings at the time of their exhibition. It looks none the worse for being hung a little high, as it has a general richness and a good balance of effect, while in detail it is not quite so satisfactory. The large drawing of Mr. Mountford's design for the "Sheffield Municipal Buildings" (1,931) has been very unfairly treated in being hung at the top; as the most important new work of its class it merited a more prominent position, and the drawing, though it might be better, is certainly not so weak as to justify this apparent forgetfulness of the importance of the building. The detail is consequently almost lost. The drawing is a water-colour somewhat loaded in style, but with a good solid effect. The ponderous square tower, with its enriched upper story and cupola, would have been more effective if the stalk had been left sternly plain instead of being partially treated with long strips of pilaster, and perhaps a slightly narrower proportion would have added to its effect. The corner-piece, with the loggia in the upper story, which connects the base of the tower with the front, does not seem quite sufficiently connected with either, and has too much the appearance of being stuck on to the composition, and the bit of roof seen over the balustrade and clinging against the walls does not improve it in this respect. Otherwise it is a dignified building distinctly municipal in character.

Messrs. Moore & White's "Premiated Design for the Victoria Institute at Worcester" (1,743) is shown not in a perspective, but in a series of elevations with plans appended, a method of representation which we should be glad to meet with more frequently in the architectural room of the Academy. The structure consists practically of two buildings joined by a covered way, the west block containing the library and galleries and the east one the science and art schools. The west elevation, containing the entrance to the library block, is the most important, and shows a freely-treated Elizabethan architecture, with mullioned windows, and pilasters hung on to the upper part of the walls and carried on corbels supported by small winged terminal figures. The entrance is marked by a small tower with an octagonal cupola, the doorway being treated with some richness, with sculptured decorations in the spandrels, &c. The west elevation has gables with the Elizabethan curved finials; the east elevation, where is the entry to the science and art schools, shows two wide, straight-lined gables, and a small octagonal turret at the south-east angle, which, however marks nothing in particular,—only containing lavatories, which are exactly the things that should not be marked. The lecture theatre, a large quadrangular apartment lighted from windows towards the street, occupies the principal part of the southern side, and has on the other side, apparently, a row of borrowed-light windows to give light to the central corridor; not a very good arrangement. The elementary room occupies the correspond-

ing position on the first floor. The designing and modelling room, life class room, and antique room occupy the rest of the first floor. The news room, lending library, and reading room occupy the southern or larger portion of the library block, with a row of very large windows facing south; not the best aspect, the rooms will be hot and exposed to a great deal of sunlight in summer. The competitors were, we believe, cut down very close as to cost, and therefore the design must be considered with the recollection of this restriction. It is suitable in appearance to its purpose, but hardly presents much architectural interest.

Mr. John O. Scott's "Tower of the University Buildings at Glasgow" (1,755), shown in a powerful pen drawing, is rather unfortunately divided into three equal heights by the heavy corbelled balconies stretching across the front of it, and seems rather to want balance and concentration of treatment. There are three stories of repetition of exactly the same coupled pointed windows, and a fourth story of larger windows of the same general design. Consequently there is rather an all-over-the-same-look about it, and not sufficient emphasis is given to any one part, and even the heavy corbelled-out turrets at the angles hardly avail to subordinate the rest of the design. The finish is a rich but rather heavy octagonal flêche of panelled open stonework. There is a general richness and dignity about it, but it wants a more plain and subdued treatment of some portions, to give picturesque and individual expression to the whole.

Mr. Hare's "Portion of Design for Sheffield Municipal Buildings" (1,789) is a remarkably well-executed water-colour, with rich and harmonious tinting in the stonework which gives it a very pleasant impression to the eye. It shows, in sharp perspective, one wing of the proposed building, with a lofty corbelled-out oriel window as the principal feature, and a portion of the arcaded first-floor loggia of the central portion seen beyond. Over the oriel is a *fronton* hiding the roof gable, decorated with a small order of superimposed columns. The nearer portion of the building is treated in an exceedingly massive manner, with an expanse of solid wall which contrasts well with the richness of the other portion. The details are a little wanting in refinement, but as a bit of architectural composition it is very effective, both in design and drawing.

Next to this hangs a still better work, Mr. F. G. Knight's "Centenary Hall, Royal Masonic Institution for Girls, Battersea-rise" (1,796). This is a pen drawing by Mr. Knight in his best style, which is saying everything for it in regard to execution; and the architectural treatment is both original and refined. It is a large hall partaking of the characteristics both of Late Gothic and Elizabethan. The lower portion is treated with a series of deeply-recessed four-centred arches at the sides, with galleries or alcoves projected across each arch at the middle of its height, access being gained to these by a kind of "triforium passage" behind the piers. Below the galleries the walls are wainscotted. The upper portion is pierced with large Late Gothic windows corresponding with the arches below. The ceiling is a waggon vault of elliptical section in the centre, supported by a large cove at each side springing from the walls; a heavy moulded longitudinal rib divides the cove from the centre span, and from this depend the stalks of the large hanging metal chandeliers of very elegant design. The ceiling is plaster treated with a rich flat ornamentation of Elizabethan strap-work. A large traceried window and two small ones occupy the end of the hall above the galleries, the smaller windows falling partially under the coves, the centre one rising well up into the central ellipse of the ceiling. The architecture is both dignified and refined, and in every way the drawing is one of the best in the room and ought to have had a central place instead of being put down near the floor at one side. But the system (or no system) of hanging in the architectural room of the Academy is a mystery which we have long ago given up.

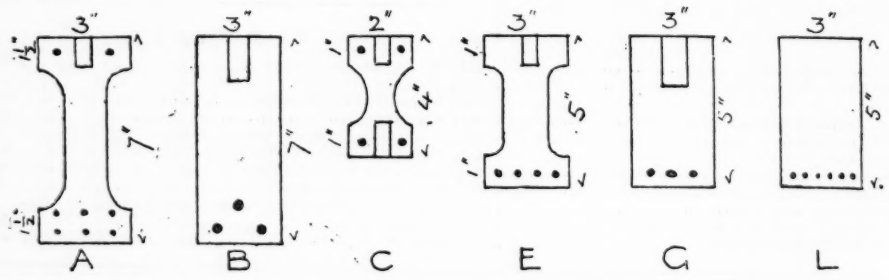
The "Principal Entrance to the Sheffield Municipal Buildings" (1873), by Mr. Mountford, is a well-executed tinted drawing showing the centre feature of the building; a round-arched entrance is placed between coupled columns of a Roman Doric order, with a cornice and balustrade over, and above this is a deep round-arched recess with two mullioned windows at back of it. A comparison of this with the general view of the building opposite shows an important alteration in the substitution of this wide arch for the two smaller ones shown in the original design; the alteration is a decided improvement. The centre portion is flanked by octagonal turrets which only clear themselves above the cornice of the entrance-door order, and below that rest on a solid wall plane flush with the jambs of the entrance archway, giving an effect of great solidity. There is a gable over the centre, rising from between the two turrets, and above is seen a picturesque roof turret on the ridge. This is a good drawing and a very pleasing bit of architectural composition.

Mr. A. Koch exhibits a design (a competition design we presume) for the "Palace of the Chamber of Deputies at Bucharest" (1,901), a heavy square Classic pile of some dignity, spoiled by an enormous kind of Mansard-shaped cupola over the centre. If some more graceful form of central roof had been hit upon, the design would not have been unworthy of its purpose, though it is terribly ponderous both in mass and detail. A "Design for Municipal Buildings," by Mr. Sidney R. Smith (1,933) is not further characterised in any way; whether it is a competition design or a mere imagination does not appear. The pen drawing is a little spoiled by overworking and lining; the design is a pure Classic one, with a lofty rusticated basement of two stories and a Corinthian order over it. A tower and octagonal cupola rises behind the central gable. There is unfortunately nothing original in the whole design, it is a meritorious treatment of the ordinary materials of a Classic town hall. Messrs. Morris & Hunter's "Design for the Public Library at Ayr" (1,857) is another of the municipal designs, apparently a very good tinted drawing, hung very high and not easy to see in detail. It is in the modern free Classic style, with two wings and a long centre, with an arcaded loggia on the ground story. The porch projects from the centre of the building in rather an inconsequent way. The general appearance of the building would have been much improved if the wings had been kept higher instead of lower than the centre portion; the centre is covered with a large hipped roof and ridge lantern in the middle of it, and the wings roofed with ridges at right-angles to the front and at a lower level than the centre roof. Consequently there is an awkward gap between the roofs, and the whole building does not seem to hang together sufficiently. Mr. Albert T. Smith's "Design for a Technical College" (1,841) is a design of more or less Elizabethan character but showing some originality of treatment, especially in the square turrets with vertical panelling which flank the centre and side gables.

These complete the designs which may be more or less classed together as of the nature of municipal or public buildings; the last two perhaps hardly coming strictly within that category, but it was convenient to include them under it for the present purpose. All other drawings of importance will be mentioned in future articles.

TESTS OF IRON AND CONCRETE BEAMS.

AN interesting series of experiments was made on Tuesday last, at Mr. Kirkaldy's testing rooms, on some joists composed of concrete with iron rods imbedded in them, in accordance with a patent taken out by Mr. F. G. Edwards. The sections of joists tested are given in the accompanying diagram.



Theoretically it would seem probable that in such a case either the concrete would be crushed before the iron came fully into play, and that the ultimate strength of the joist would really prove to be that of the iron *minus* the concrete, or that the iron would draw through the concrete when the bending strain came upon it; and we believe that this has been the case in some former experiments that have been made. It seems inherently improbable that the two materials would act together in resisting strain. The experiments of Tuesday last, however, proved that the iron, in the form here applied, of an association of thin rods, would resist a very considerable strain and deflection without drawing; indeed not one of the experiments showed any symptom of the iron drawing, and in one case it actually appeared that the iron rods had been perceptibly attenuated by the strain without losing their hold on the concrete.

The concrete for the whole of the specimens was of equal parts of Portland cement and coke breeze. Specimens A, C, D, E, and F were of twenty-one days concrete, the remainder of seven days concrete. The breeze for the twenty-one day specimens was passed through a ¼-in. mesh, that for seventeen day specimens through a ½-in. mesh. The small space marked off in the centre of the upper face of the joists consists of soft concrete for nailing into. This is a necessity, of course, if flooring boards are to be fixed down to it by nailing, but it weakens the compressive strength of the joist where this is most needed, and as a test of the strength of the concrete joist in this respect it somewhat vitiates the experiments.

All the tests consisted of the application of cross-strain at the centre of the beam. The first test was with the section marked A, the only one of the joists in which rods were introduced at the upper as well as at the lower portion of the section (for the section C is intended for uprights, and not for use as a joist). Six rods are imbedded at the lower edge of the joist and two at the upper, all of ·25 in. diameter. In this test the lower side of the concrete cracked at a pressure of 2,853 lbs., and the joist was broken at 2,867 lbs., after a deflection of ·2·02 in. Before this one of the upper iron rods had buckled out sideways with the compressing strain and broken up the surface of the concrete; which was very much what might have been expected. The bearing between supports was 10 ft.

In section B (seven days concrete) three iron rods, ·5 in. diameter, are imbedded so as to form a triangular position on section, near the lower edge of the joist. This specimen commenced crushing at the top at 2,874 lbs., with a deflection of 1·48 in., and its strength

was gone after that, as with considerable additional pressure the steelyard never rose again.

C (21 days concrete) has two rods ·19 in. diameter in each flange. It was subjected to the same test of cross-strain, though as observed, not intended especially for that class of strain. The lower edge cracked at 416 lbs., and ·71 in. deflection; the upper wires did not buckle.

D was another test with the same section, which cracked at 377 lbs. and broke with two clean cracks close to each other. In this and all the other tests except K and L (K being a 5 by 3 fir joist) the real strength of the beam was gone after the first crack, the steelyard never rising again.

E is a section with four ·25-in. rods in the lower flange. This and the remainder, as before noted, were tested with a 6-ft. bearing only. The lower edge cracked at 2,369 lbs. with ·51-in. deflection. F was a repetition with a similar specimen, the bottom flange cracked at 2,021 lbs., ·63-in. deflection.

G has three rods in the bottom flange of ·375-in. diameter. This cracked at the bottom and crushed at the top simultaneously at 2,494 lbs., ·92-in. deflection. On the final failure the concrete broke away from the iron.

H was a duplicate of the same specimen. At 2,508 lbs. the results were much the same as in the last specimen; deflection ·86 in. On further pressure one half the length of the joist separated above the line of the iron, leaving a long open fissure.

J was a test of a concrete beam of similar section to G but without any iron in it. It broke suddenly right through, and dropped in two halves, at 431 lbs.: ·06 in. deflection.

K was, as mentioned, a 5 by 3 fir joist of exceptionally good timber. It commenced to crush on the upper side at 5,438 lbs. with ·38 in. deflection. It failed entirely at 6,107 lbs., the lower edge going in long fibres crack after crack in succession.

L was a 6 ft. 6 in. lintel with the ends fixed and a 3-ft. bearing. Six rods ·19 in. diameter were imbedded in it in such a way as to be near the top flange at the end portions which were clamped, and carried down to the bottom flange at the unsupported portion; thus forming a test for the stresses caused by fixing the ends. The concrete was slightly started at the upper edge in fixing the press against it before commencing the experiment. At 4,607 lbs. it began to crack at the bottom, with ·42 in. deflection, but sustained 5,104 lbs. before failing. There was little sign of failure at the points which were fixed and clamped, the failure was almost entirely in the centre.

The tests seem to establish the fact that concrete combined with iron rods in this form will sustain a far greater cross-strain than concrete alone will sustain, and that the concrete will crush before the rods will draw through it. The most important point to notice, perhaps, is the remarkable discrepancy between the behaviour of the concrete and iron and that of the pure concrete, and the manner in which the latter broke short in two suddenly, without a moment's warning. On the other hand there is no doubt considerable waste of strength in the iron rods, which were always perfectly sound, though bent, after the concrete was completely crushed. Much thinner rods would suffice for the tension, but in all probability, having less surface hold, they would draw through the concrete. The contrast again between the crushing weights of the concrete and iron joists and that of the fir joist is significant, showing the difference between a really homogeneous joist and one composed of two materials of opposite properties. It is proved that the latter will work together to a greater extent than had been supposed; but one can hardly call it a scientific construction; all that can be said is that it will answer up to a certain point, though a good deal of the tensile strength of the iron is wasted. It is suggested that such joists as these would be very valuable as ground-floor joists, where it is desirable to have something that cannot be affected by damp. No doubt also the section C would be useful, from a sanitary and fire-resisting point of view, as quartering for partitions. But the combination is a compromise, not a complete adjustment of forces, and it can hardly be otherwise. Nevertheless, the experiments were interesting and valuable, and we are indebted to the patentee and Mr. Kirkaldy for giving us the opportunity of witnessing them.

NOTES.

YESTERDAY (Friday), at noon, the Berlin International Art Exhibition was to be opened by the Dowager Empress Frederick, in presence of the Emperor and his Court, with all due ceremony and military pomp, but without the splendour originally intended, owing to the Court mourning for the late Field-Marshal von Moltke. In Berlin great curiosity prevails as to the standard this exhibition will show, or in what state of completion it will be on opening-day, the grounds and buildings having been so carefully guarded that even representatives of the local press have not been able to obtain any information on the subject, much less to judge for themselves. We are, on good authority, able to state that the opening-day will see the exhibition, as a whole, complete, and that only one or two of the groups (among these England, we are sorry to see) are likely to mar the impression by being in a state of semi-completion. The visitor will take home a good impression of the exhibition, the arrangement of the halls, the distribution of the groups, the hanging and the quality of the work shown, and will have reason to be satisfied with the doings of both managing and hanging committees, although the latter of these two bodies may, to those who have chanced to see them at work and have viewed the hundreds of non-accepted works, have but a poor right to being called a model or an unprejudiced one. The exhibition, although it can scarcely be called an "international" one, and may cause some disappointment in this respect, will certainly be a success and figure highly in the annals of well-managed art exhibitions. We hope to be able to give a full description at a later date; for the present we will only state that oil painting has the largest space, that sculpture comes next, that black-and-whites and watercolours are difficult to find, and that architecture forms a small, but excellently-arranged, group of itself, in which a good representation of the work done by the German members of the profession is given, and some good specimens of Russian, Italian, and Austrian draughtsmanship are shown. What English work will be when on view in this architectural division, we do not know, the space destined for it is void, the cases are still unpacked. In the hall in which the English group proper will have room found for it, we could already see that the collection of oil-paintings here, although small, will be a select one, and that a good show will be made by the black-and-white work. Among the names of those whose pictures are or will be definitely hung in our group we notice those of Messrs. Aumonier, Collier, Crane, John Gilbert, Herkomer, Frank Holl, Colin Hunter, Sir F. Leighton, Linton, Yeend King, Sir J. Millais, H. Moore, David Murray, Ouless, Pettie, W. B. Richmond, J. J. Shannon, Waterlow, Wyllie, &c.

NOT the least satisfactory feature of the meeting held at Liverpool on Saturday last to further the principle of conciliation in labour disputes is to be found in the fact that it was promoted by a committee of working men. In spite of the success which has attended a considerable proportion of the strikes of the past few years, the moderate and thinking men in the "labour" ranks are beginning to recognise the evils attendant even upon success, and are willing to receive more education as to the true relations of capital to labour. Lord Brassey made a most useful and convincing speech, and pointed out the necessity which existed for working men to acquire accurate information as to the prospects of trade, the working of competition, and the profits which were being realised. Many a man receives wage-money,—and that in a discontented and unthankful spirit,—which will not produce a penny in profits for his employer, but which has to be expended in order to keep a hold on certain trade, with a prospect of recoupment in the future. Then a strike will undo all that has been done at so much risk, rendering the capitalists' foresight and enterprise unavailing; and whatever apparent success may be achieved by the striker, the business with which he is connected almost invariably suffers. A large proportion of the workers in the shipping and produce trades of Liverpool are in favour of the establishment of a board of reference to consist of *bonâ fide* employers and workmen, and a resolution was carried at the meeting alluded to, recommending the formation of such a board. This movement being designed with a view of preventing the recurrence of strikes, is worthy of support and success. Lord Brassey spoke of the difference existing between conciliation and arbitration, pointing out that the former was the best mode of settling labour disputes. The value of courts of arbitration, however, is being increasingly recognised, and a scheme was submitted to the Corporation of London last week, for the establishment of a Chamber of Arbitration, to which the mercantile community trading in the metropolis might submit differences arising in the course of their respective businesses. It is thought that most of the expenses connected with such a chamber could be met by the fees to be paid by disputants. The scheme is largely supported, and will in all probability be carried out.

DR. BLAXALL'S report to the Local Government Board upon the sanitary condition and administration of the rural sanitary district of Staines, Middlesex, discloses a state of things which is about as bad as it could be, and appears in the highest degree discreditable to the local sanitary authority. Dr. Blaxall reports that he made an exhaustive inspection of the district, visiting the several villages, hamlets, and blocks of new buildings, with the result of finding at every step of the inquiry unmistakable evidence of the want of efficient sanitary administration. Among other things, we read:—

"At Sipson the authority have recently converted a series of catchpits into a so-called sewer, by means of glazed pipes laid from pit to pit to carry the overflow from one to the other, till finally the sewage passes into an open ditch. This continues alongside the high road, and is complained of as a nuisance by the inhabitants of neighbouring dwellings. The first of the catchpits receives the drainage of several cottages, and is situated within a few feet of the end cottage, the occupants of which complain of the intolerable stench from it. Indeed, they have reason, for the contents of the catchpit amounted at the time of my visit to some 4 ft. of black stinking mud. And from this point onwards, this series of stinking pits gives rise to nuisance. They are called "sewers," but offend against every principle of sewer construction. . . . The authority have been content to allow the old cesspit privies to continue in general use regardless of the attendant evils of filth-pollution of earth, air, and water. Some few cesspits are shallow and open, but they are mostly covered in and sunk some feet into the soil. This allows, and no doubt is intended to allow, of long storage of excrement and of the oozing away of the fluid contents of cesspools. This soakage into the gravel takes place readily when the sub-soil water is low, but as the water rises the cesspits are apt to refill so as sometimes to overflow at the drain inlets; this is especially the case where slop drains communicate with the privy-pit. A few examples came under notice of privy-pits overflowing direct into neighbouring streams. So I met with examples of every kind and every degree of cesspit nuisances, up to cases where people were living in houses with walls saturated with privy filth and with the rooms stinking with privy effluvia; the people suffering from nausea, sore-throats, and the like. In a few instances pail-closets are in use, and, although not properly kept, they were a marked improvement upon the cesspit privies generally in vogue in the district.

The water supply of the Staines Rural District is mainly derived from wells sunk in the sub-soil, from which it is raised by pumps or buckets, or through the so-called Abyssinian tubes. Now, seeing that cesspools, privy-pits, and wells are sunk in the common gravel within a few feet or yards of each other, and that the liquids in them rise and fall with the water in the sub-soil, there can be no doubt about what it is that the inhabitants have to consume under the name of water; and the fact of habitual pollution of water in these wells is evidenced by the frequent complaints made by the inhabitants about their water, and by the reports of the Medical Officers of Health."

The prospect does not seem to be much better in regard to the new houses which are being built in the neighbourhood:—

"In the new houses that are being constructed in the Staines Rural District, there is a lamentable neglect of elementary sanitary principles; and neglect in this matter is the more to be regretted, because these faults of construction must needs be so difficult to amend hereafter. Considerable areas have been laid out for building purposes, and a large number of new dwellings have actually been erected, in some places forming continuous streets. But no provision is made to secure these dwellings from dampness, nor for the efficient sewerage and drainage of the streets and houses, nor for a wholesome method of excrement removal, nor yet for the supply of wholesome water to the houses. In short, the new houses are being provided with the same sanitary faults as those that are found in the older houses of the district."

The effect of the general filthiness of soil and water in the Staines Rural Sanitary District, on the river in its neighbourhood is a matter which may concern others than those living in the district:—

"Large volumes of water course through the river gravel which forms the subsoil, and into this gravel are washed the contents of several thousand cesspools purposely dug in the gravel for convenience of discharge thereinto. The water thus befouled flows directly or indirectly into the Thames. . . . . At a short distance below this neighbourhood, on the southern bank of the river, are situated the pumping-stations of certain great London water companies. . . . . The discharges from each several case of typhoid fever in the Staines Rural District, if they find their way from the district cesspools along the gravel stream into the Thames, have the opportunity of 'specifically contaminating' vast quantities of the river water; so that nothing but the efficiency of the water company's filtration stands between the typhoid matter entering the river at Sunbury and the consumption of that typhoid matter by the water drinkers of half London. What is true of typhoid fever in this connexion is beyond doubt true for Asiatic cholera, so that cases of this cholera in the Staines Rural District might have disastrous results for the metropolis."

This passage lends additional emphasis to what we have frequently said on the matter of the London water supply, and should be read in connexion with what Mr. Binnie, the Engineer to the London County Council, reported on this point a short time ago (see *Builder* for April 18, p. 311, top of col. 3).

MR. JOHN F. ROURKE contributes to the February number of the Transactions of the American Society of Civil Engineers a short paper describing the progress that has been made with the Chignecto Ship Railway, now in course of construction between the Bay of Fundy and the Gulf of St. Lawrence. The railway, which is 17 miles long, consists of two lines of standard gauge, 18 ft. centres. The vessel to be transported will be placed on a platform of cars and supported by blocks along its keel and bilges, its weight being distributed over 240 wheels. The journey across the isthmus will occupy about two hours, two locomotives only being required. The hydraulic presses that are required to raise the vessels from the level of the sea to that of the railway are designed to lift ships carrying 1,000 tons of cargo. It is expected this line will be in working order by the summer of next year, and should this novel system of transport prove successful, we may expect to see in the near future many similar schemes carried out which are now held in abeyance pending the result of the experiment that is shortly to be made at Chignecto.

AN improved form of shield for tunnelling has been lately devised and patented by Mr. J. R. Lilliegirst, which we think would be found to work well in water-bearing strata, such as wet clay, sand, and gravel. The shield, which is of very simple construction, is forced forward by hydraulic jacks in the usual manner, but its form is such as to allow easy access to the material that is to be excavated, even when there is much water to be contended with.

HOWEVER beautiful it may be in itself as a design, the new western porch at St. Margaret's Church, Westminster, can hardly be considered a successful addition to the church. Hitherto the breadth of treatment of the whole façade formed a strong and pleasant contrast to the elaborate work of the adjacent north transept front of the abbey. The new porch destroys this completely, besides being quite out of character with the front against which it is placed, and having a "stuck-on" appearance, which is anything but pleasing.

LOCAL history is becoming much more studied, as the landmarks of the past get gradually effaced. Several parish histories have been written or thoroughly revised, by the aid of topographical collections in our public libraries. In that of Lambeth Palace is a series of books, pamphlets, and prints on the records of Kent and the diocese of Canterbury, to which important donations have lately been made, especially in a somewhat rare book entitled "The Enrichment of the Weald of Kent," by Gervase Markham, 1649. There is a letter of this industrious writer among the Lambeth MSS. His treatises on husbandry are numerous and well known. The above tract on the Weald was lately presented with other works by W. J. Harvey, F.S.A. Among the collection are two water-colour drawings by Paul Sandby of the once remaining gates to the city of Canterbury, besides several portfolios of interest to the architectural antiquary. This increasing series of Kentish antiquities has been of voluntary contribution and effort; and it is hoped that those who may possess duplicate engravings or books on the subject will add them to this portion of the Palace Library, and thereby increase its utility to students, who can examine the contents daily (except Saturdays) from ten a.m. to five p.m.

THE room in the Law Courts, opposite to the Bar Library, hitherto used as an arbitration room, has been fitted up in a rough and ready fashion as a Court, and it is intended to be used as such. This is characteristic of the haphazard way in which we manage these matters in this country. The room has but one entrance, and is up a long flight of stairs, and will be very inconvenient as a public Court. It would have been reasonable when the Law Courts were built to have erected at least one extra Court, or to have had the building designed so that more Courts could be added when required, without detriment to the form of the building generally. As it is, from an answer in the House of Commons this week, it is obvious that within a short time the Government intend to appoint another Chancery Judge, and thus the difficulty at the Courts will crop up again. Every year, indeed, shows more and more plainly the mistake which was made in adopting the plans from which the building was constructed.

A CIRCULAR which we received recently from Mr. Henry Holiday informs us that he has taken the step of superintending the execution of his own stained glass work for the future, instead of drawing cartoons for manufacturers to carry out. Mr. Holiday says, "Time has persuaded me that without a more intimate association of designer and painter it is difficult to obtain with certainty the highest degrees of beauty." Mr. Holiday intends to paint a good deal upon the glass himself, and to have what he cannot personally execute carried out in his own atelier under his own eye. Those therefore who wish for stained glass from Mr. Holiday's design will henceforth have to apply to him to produce the glass itself, and not only the cartoon. This step on the part of an eminent designer for glass is quite in keeping with the general tendency of the day, among the more earnest class of decorative artists.

THE *Ludgate Monthly*, a new magazine published at the modest price of threepence, opens with an interesting little article on "Ludgate and its memories," by Mr. C. R. B. Barrett. It includes a view, from an old engraving, of "Lud Gate in 1670," and illustrations of the old statues of King Lud and his sons, which have gone through a good many vicissitudes, and were last heard of at Hertford Villa, Regent's Park. The writer suggests that the Corporation of London should make some effort to find out and repurchase them.

THE exhibition of drawings by Mrs. Allingham, at the Fine Art Society's rooms, is of the same character as those which have preceded it, and of nearly equal charm; if the proportion of highly-finished works is rather less than before, on the other hand there is a beauty of colour and composition in some of the drawings in the present exhibition which seems to surpass anything in the previous collections of her drawings. Among those which struck us particularly for this harmony of colour are "The Little House under the Hill" (15); "Sandy lane near Witney" (19); "By the Old Cottage" (22) a drawing with a bare foreground which must have been rather a difficulty; "Cottage at Bowler's Green, Surrey" (43); "Under the old Elms" (66), a remarkably sunshiny work with the shadows of the trees on the fresh grass; and "A Cottage" (79), one of the smallest but one of the most beautiful works in the collection. "A Visit to Grannie" (24) shows a portion only of an old brick cottage with large mullioned and transomed windows, with its garden in front; the bit of cottage architecture shown is very interesting. In "Master Hardy's, Sandhills, Witney" (31) a long half-timbered cottage groups admirably with the surrounding trees. "Farringford Dairy, Isle of Wight" (54) shows a very characteristic bit of cottage architecture, with the thatched roof coming down in capes and headlands between the dormer windows. "Cottage near Pinner" (58) is a study of the old-fashioned formal cottage front garden with clipped box-trees in "shapes"; "Hollyhock Cottage" (61) is noticeable for the charm of composition and for the expressive character of the small figures introduced. The artist has been trying one or two new subjects: "Sea Grass, Eastbourne" (10) and "At Low Water" (14); and there is a study of the "Fair near Shere, Surrey" (86), with a motley crowd of people depicted, which is quite a new kind of subject among her works. Among the small half-lengths of figures of young cottage girls, perhaps "Jenny" (67) is the most taking in character and colour, but all are happy examples of that rustic refinement which perhaps owes a little to the artist, but which is more often to be met with in some of our country districts than those who do not look for it would perhaps be ready to expect. It is one of Mrs. Allingham's claims to our gratitude that she has preferred to see and to reproduce the best and sweetest instead of the most uncouth types of English peasant life.

THE accompanying sketch represents the old "Raven Inn" at Battersea, which we understand is now being so transformed in the course of repair and alteration that little of its old physiognomy will be left. The old inn must have stood at Battersea long before Lord Bolingbroke met Pope and other literary

"Old Raven" Inn, Battersea. From a Sketch by Mr. C. H. Marquett.

friends in the "Cedar Parlour" close by. The inn, which had a tap-room and a "chimney nook," in which six could sit by the fire, was a favourite haunt of the Battersea asparagus-growers and market gardeners, about whom Steele wrote so lovingly. No doubt the "Raven" was noticed,—perhaps sketched,—by Turner, who loved to paint the sunsets over Chelsea Reach, from the belfry of St. Mary's Church close by. In recent years the "Raven Inn" has been a favourite haunt of rowing men. The builders who are rebuilding it found it "propped, worm-eaten, and ruinously old," and, but for some wonderful shoring, it would have tumbled about the ears of its present proprietor. Before the days of "reformed vestries," all the business of the parish was really transacted at the old inn. Here the churchwardens, overseers, and vestrymen met in a club called "The Ravens," but which the irreverent called "The Forty Thieves." In the new building glazed bricks, leaded lights, and an old sign will preserve some of the characteristics of a famous old inn. The new work is being carried out under the direction of Mr. Yetts as architect, Messrs. Laster & Son being the builders.

A COLLECTION of drawings by M. Jules Lessore, which are now on view at Messrs. Buck & Reid's in New Bond-street, include some sketches about Plymouth, executed in a broad free manner, and with some individuality of style. "The Pool" (18) is a fine sketch, slightly marred, to the architectural eye, by a want of perpendicularity here and there in the lines of the buildings, which a little care should have avoided even in a rapid sketch. "Shipping at the Coal Stairs," "Plymouth Quay," "The Barbican," are among the best of the set. Among the other drawings is a powerful one of "Notre Dame, Paris," rather too cold in tone; and three small sketches at Rotherfield are interesting and picturesque; Rotherfield Church especially, a very good little composition, worth working out in a more finished drawing.

DETAILLE'S large painting exhibited at Messrs. Boussod & Valadon's under the title "Vive l'Empereur" represents a charge of the 4th Hussars on some occasion not mentioned, and seems rather obviously intended as a challenge to a great work of Meissonier's on a similar subject. The prominent incident, which in fact to a great extent makes the picture, is the figure of the commanding officer in front on a magnificent grey horse; this is full of life and energy, and is one of the finest things the artist has done. The difficulty of representing a line of galloping horses (in the rear) so as to convey the idea of rapid motion does not seem to have been quite mastered, and on the whole the work is rather disappointing as a picture; possibly the rather dull light of last Saturday afternoon was against it. The picture has been acquired by an anonymous purchaser for presentation to the Luxembourg, where it is ultimately to find its place.

THE "NEW GALLERY" EXHIBITION.

THE New Gallery is practically the continuation of the Old Grosvenor Gallery, but its contents are not so much confined to one school as was the case in the earlier days at all events of the Grosvenor; there is more of a mingling now of transcendental pictures with those that are of common earth. The leading work, as to size and importance, is however of the transcendental type, Mr. Burne Jones's large painting "The Star of Bethlehem" (63), painted for the Corporation of Birmingham. There is something almost grotesque in the association of Birmingham with a picture of this type, though it is to the credit of the Birmingham Corporation, no doubt, that they should wish for and commission a work of ideal art, and we presume that in the representation of the offerings of the Magi (for that is the real subject) there is some symbolical reference to the idea of Birmingham offering her wealth at the shrine of some higher ideal. The picture, a very large water colour, represents the Virgin and child on the left seated under a thatched shelter which makes a rather undecorative object, and on the right the three visitors, in gorgeous robes the decorative detail of which is a study in itself; one of them is represented as an Ethiopian or some similar race, his dark colour coming in well in combination with the rich clothing and jewellery. Between these and the Madonna is "the Star in the East," represented by an angel with stiff upright figure and feet pointed straight down to the grass, over which it seems to float, and holding carefully between its two hands the star. In one sense this may be called perhaps a pretty fancy; from another point of view we fear it illustrates what the whole picture illustrates, the essential childishness of Mr. Burne Jones's conceptions of scriptural events or parables. In a decorative sense the picture is beautiful; in an intellectual sense it is a kind of thing only to please children, a conception which would be rejected with something like scorn by all robust minds. Mr. Burne Jones's other work, "Awake, O North Wind, and Come, thou South" (34) is another idealistic painting of abstract conceptions; the standing figure in robes of dark blue, in the foreground, representing the speaker in the sentence quoted, the owner of the "garden," is a pure delight from its grace and beauty; the figure of the wind is a repetition of a type we have often seen from the artist before, a figure supposed to be flying through the air, placed in an oblique position and perfectly rigid. No posture can be more at variance with the idea of flight, or more rigid and angular in effect as part of a composition of figures: it is a convention which seems a favourite one with the painter, but the charm of which we entirely fail to understand.

Mr. G. F. Watts's picture of "The Nixie's Foundling" (9), which should rather be called "The Nixie's Find," is an exquisite colour dream of a half-length figure of some fairy being who has found a rich necklace and is admiring it with all the rapture of a child of earth. The beauty of the work, which the painter has perhaps never surpassed in its particular way, lies in its exquisitely rich and delicate colour and the absence of all materialistic representation of flesh and blood; it is a figure idealised into a kind of prismatic region both of colour and conception. Mr. Watts's other work, "The Deluge—the Forty-first Day" (238) is an attempt to convey the effect of a great burst of supernatural sunshine breaking first through the mists and shining on the waters. It is powerful and impressive, but it is an attempt at something beyond the power of painting to give adequately.

Mr. Tadema's contribution, "Love in Idleness" (96) is in its special characteristics one of the finest of his paintings, and will probably be esteemed his leading work of the year. It is a larger picture than is usual with him, representing a high marble-paved terrace on some Ægean island, backed by a balustrade sculptured with bas-reliefs; in front is a peculiarly-designed marble fountain in which Cupids presiding over waterspouts in niches, alternate with panels with fluted ornament. Two figures are on the terrace, one lying down, the other seated, with her bright head relieved against the intensely blue Mediterranean water; on the horizon, over the balustrade, sparkle in the sun the distant cliffs and temples of another island. As a representation of a moment of antique life the picture is superb, as far as the surroundings of the figures go. The one drawback, too often found in this artist's remarkable works, is that the figures are neither very beautiful nor very interesting.

The remainder of the important figure-pictures are chiefly portraits, but there are three or four other paintings of the ideal class. These include a small but charming little work of Mr. Poynter's, "Knuckle-bones" (11), a couple of nude Greek maidens playing with bones while a draped figure in the window-seat looks on. There is a little want of delicacy in the texture of the flesh, and the red shadows on the side of the figure on the left seem too heavy; but it is a very pretty little work. Mr. Waterhouse's "Circe" (153) is one of the many failures of artists in representing this strange creation of ancient myth; there is an insolence and *abandon* about the seated figure, but she is not the goddess. Mrs. Swynnerton's "Cupid and Psyche" (161) represents two young people of commonplace physiognomy acting the parts; Cupid has got a splendid pair of purple wings which form an important element in the picture, but his face is that of an ordinary schoolboy. Painters are sadly too fond of reducing poetic myths to mere prose. Mr. Richmond's "Amor Omnia Vincit" (176) does not err in this way; it is purely poetic both in the personages and in the lighting of the scene; we do not see the point of the title, as the picture might be called "Venus Preparing for the Bath," but it is an effective work and treats an ideal subject in an idealised manner.

Of the portraits, the finest to our thinking, perhaps the finest picture in the room, is Mr. Shannon's "Miss Clough—Principal of Newnham College" (61), a noble portrait, effective in colour without any straining after effect; the head is fine and dignified in expression and solidly painted, the whole thing is a model of what a portrait should be, a representation of the personality of the sitter, without forgetting artistic effect. Too many portraits of the new school (some in this collection) impress one with the idea that the first aim has been to make a telling decorative effect of colour, and that the personality was a secondary matter. Mr. Sargent's object in portrait-painting seems to be to make his sitters ridiculous, and to throw aside ostentatiously all attempt to produce a pleasing artistic result.

His "portrait" (56) of a young woman in white, with hair unkempt, stuck sitting down facing the spectator exactly in the middle of a background of carved wainscotting, is a work we can only call offensive both in regard to art and good taste. How any lady can consent to be painted in such a manner is a mystery; but unfortunately there are ladies, as well as artists, who will do nearly anything for the sake of singularity. "Miss Nina Webly" (2) seems to have decoyed Mr. John Collier into painting a miserable lanky portrait quite at variance with his usual healthy and manly style, which is better represented in his portrait of "Miss Mabel Pollock" in dark outdoor dress and hat (19); a very spirited performance. Other noticeable portraits are Mr. Orchardson's of "Professor Nichol" (50) and Mr. Herkomer's of "Lady Helen Fergusson" (167) descending the garden steps, her head and white dress relieved against the mass of ivy on the house behind; a fine dignified example of that class of portrait (so fascinating when well done) which aims at giving, as it were, a momentary glimpse of the sitter passing by, or occupied about some incident of everyday life, instead of a formally arranged portraiture.

Among landscapes we may best class Mr. Philip Burne Jones's remarkable picture of "Earth-rise from the Moon" (190). We stand in the bleak, desolate, and airless lunar landscape, covered with extinct volcanic cones casting black shadows, and over the rocky horizon rises the large disc of the earth with the softened yellow radiance due to its atmosphere, which makes a faint halo or corona round the disc; the outlines of the continents and seas are distinctly seen. This is a powerful and really imaginative picture, and at once places its author on a higher level than any of his previous very clever works have given him. It is a pity that he should have marred the realism of the scene by the introduction of a skeleton in the foreground, apparently similar to a human skeleton,—at least the arm with its radius and ulna is distinctly made out, and a thigh-bone with the trochanter process is also visible. Now astronomers would tell the painter that if, as they fully believe, life is now dead in the moon, it must have been so for a time far too great for any remains of that life to exist now, except in completely fossil form; and biologists would probably tell him that it is in the highest degree improbable that biological development should have followed the same course in the earth as in the moon, in details at all events; that it should do so would be one chance out of almost infinite possibilities. He had better have left the skeleton alone. Among terrestrial landscapes are two fine seapieces by Mr. Henry Moore (6 and 16); a snow picture by Mr. Mark Fisher (21), a new field for this painter; "An April Day" (15) by Mr. W. S. Jay; "Autumn" (62), by Mr. J. W. North, "the light that never was on sea or land," certainly, but very beautiful nevertheless; "Midsummer" (126), by Mr. C. W. Wyllie, a beautiful Lower Thames picture full of sunlight; "October" (126) by Mr. Albert Goodwin; "Daphis" (140) by Mr. Alfred East, a scene with an ancient town on the other side of a river, white in the hazy light; "Open Fields" (146), by Mr. Thorne Waite, a genuine bit of breezy English landscape; and The Setting Sun" (157) by Mr. Adrian Stokes, a powerful little landscape completely French in feeling and treatment, but none the worse for that; a curious æsthetic contrast to the last-named work.

Mr. Nettleship's "Flood" (145) is a powerful work representing a lioness and cubs carried down a rapid on the stems of trees, the head of the animal is very fine, but the effect of light seems rather sensational. A curious instance of the disregard of painters for truth of architectural detail is shown in Mr. Spence's "The Last Bar" (260), where the classically draped figures are seated on a marble wall carved with Classic and purely Renaissance detail mixed up together. As another criticism we may observe that there was no such thing as a "bar" in music until somewhere about the beginning of the sixteenth century.

Among landscapes in the small (south) room should not be overlooked Mr. Hope M'Lachlan's curious but original and poetic work "The Thrush" (232), and a beautiful and delicate little landscape by Mr. Poynter under the title "Playtime" (219), a scene looking over a Sussex village, with a group of boys playing in the middle distance.

LETTER FROM PARIS.

SOME political critic once made the remark that "a Radical can always find another more radical than himself." This seems to be equally true in the world of art in Paris, which has shown during the last few years a continual succession of jealousies and recriminations.

From the first quarrel arose the Champ de Mars exhibition, which was hailed by all the malcontents and ambitious but unappreciated persons as a kind of promised land of justice and freedom. But after only one year of existence this second Salon has been the scene of a new schism. We are now, alas! threatened with a third Salon, that of the "rejected." It has already assured itself an asylum in the Palais des Arts Libéraux, which M. Alphand, in his desire to find a use for the old exhibition buildings, has handed over with an easy generosity. If the project is carried out, we shall have the melancholy spectacle of two rival Salons on opposite sides of the same ground, and those who have been "pilled" at the Champs Élysées and the Palais des Beaux-Arts will take refuge with the "independents." It is not the first time this kind of thing has happened. Under the Empire, when the official Salon was in the hands of the Government, the rejected painters collected their works in a neighbouring locality. People amused themselves a good deal at that time with the unreal landscapes and fantastic portraits which have now become current coin in our exhibitions. It was from this attempt that Impressionism, so much in fashion now, first took its rise. The future will show whether this last rebellion will in turn give rise to some new fashion, before which the violent greens of MM. Pizarro and Lisley will ere long appear as much "played out" as do now the pictures of M. Stenben and M. Signol.

While awaiting this new mystery, let us look in at the Galerie Georges Petit, where the Pastellists have again made their annual show of talent and "virtuosity." M. Adrien Moreau exhibits a series of sketches of rural scenes, sweet and inviting in colour; M. Duez reproduces with clear tonality the shores and coast of Normandy. M. James Tissot shows his very original and personal reminiscences of England. M. Forani takes us into the "coulisses" and the doubtful side of society. M. Billotte is still the melancholy painter of the desolate places on the outskirts of great towns. M. Lhermitte continues to trace, with his vigorous crayon, the episodes of country life, while M. Montenard entrances us with the sunny landscapes of Provence. The portraits of MM. Doucet, Machard, and Boldini, the Parisian scenes of M. Jean Bérand, the nude studies of M. Gervex, the curious colour experiments of M. Besnard, finish the summary of this exhibition, always an interesting and clever one, and never more so than this year.

One cannot say so much for the exhibition improvised under the title of "Poil et Plume," by a group of literary men anxious to show that they can handle the pencil as well as the pen. With the exception of the sketches of Victor Hugo and of some attempts by Arsène Houssaye and the brothers de Goncourt, the collection is little better than ridiculous. The organiser of it, M. Emile Bergerat, a writer of great ability and a detestable painter, has flooded it with his productions. The thing is an amusing joke worth making note of, and that is all, in the artistic sense. It ought to be added that the exhibition is for the benefit of a charity, and perhaps the end justifies the means. We may mention also an interesting exhibition of the marine paintings of M. Auguste Flameng, a series of impressions of travel, spirited sketches rapidly caught and noted in full daylight.

At the Hôtel de Ville there have been exhibited, the last few days, the cupola paintings for the Galerie Lobau. The premium in this competition has been awarded to a charming composition by M. Picard, who was assisted in the decorative part by a young architect, M. Risler. M. Boureau has obtained the second prize. M. d'Espouy, the architect, who intended, in case he succeeded, to collaborate with M. Raphaël Collin, has only obtained the third prize. M. Dubufe, in spite of his high abilities, has been classed fourth, and M. Moreau Nèret is the fifth. The public judgment has ratified that of the jury in favour of M. Picard, from whom we may expect a fine and decorative treatment of the cupola.

With the spring commences the annual appearance of apocryphal pictures. Two years ago we had the false Raphael cartoons exhibited at the Galerie Petit, and which a Muscovite impresario has just re-edited, so to speak, affirming their superiority to those at Hampton Court. Now the discovery is announced, at the shop of a dealer, of a Leonardo da Vinci, or, at the least, an Andrea del Sarto. The Government and the experts are occupying themselves about this work, which will probably have the same history as the pretended Rembrandt of Pecq, now returned into the obscurity from which it ought never to have emerged.

The new Salle des Colonnades at the Louvre, reserved for the exhibition of M. Dieulafoy's objects from Persia, has just been opened. In the centre is placed the "Apadana" or throne-room of Artaxerxes Memnon, restored to a scale of one centimètre to the mètre, with its porticos, columns, and central road ornamented with towers, leading to the great throne-room of the king. The exhibition, very well arranged, will be found of great interest.

In the architectural competition at the Ecole des Beaux-Arts the jury have awarded second medals to M. Delahaye, pupil of M. Guadet; to M. Bonsarens, pupil of MM. Daumet and Girault, and to M. Valentin, pupil of MM. Gerhardt and Redon. In the section of painting the ten competitors admitted have received for subject an incident from the fable of Philemon and Baucis, thus stated: "L'oie vint de se réfugier dans les jambes des Dieux, ce qui empêcha leur hôte de la tuer": an odd choice certainly, and one pities the young students compelled, in the silence of their academic cells, to seek inspiration from so unpromising a subject.

The Salon of the Champs Élysées will have opened before these remarks are published, and will be considered more particularly in a future number. Among its contents we may mention the monument which the pupils and admirers of César Franck propose to raise to the memory of the celebrated organist and composer.

We may conclude here by reference to the great loss which the world of art has sustained by the sudden death, at the age of fifty-seven, of the eminent sculptor Henri Chapu. He was born at Mée (Seine et Marne), and studied under Pradier and Duret. He obtained twice the second "Grand Prix de Rome," and the "Premier Prix" in 1855. He made a brilliant début in the Salon of 1863 with his "Mercury inventing the Caduceus," which is now at the Luxembourg. Since then his works have always taken the highest rank. His "Jeanne d'Arc à Domremy" is one of his finest productions. We may recall also the figure of "Jeunesse" which decorates the monument of Henri Regnault at the École des Beaux-Arts, the monument to Bishop Dupanloup, and the charming figure of a young girl gathering flowers, which was commissioned by the Duc d'Aumale for the park at Chantilly. During his career Chapu had obtained all the honours open to an artist; the third medal in 1863; two medals in 1865 and 1866; the "Médaille d'Honneur" in 1875 and 1877, and, the same year, the biennial prize of 20,000 francs awarded by the Institut. He was member of the Académie des Beaux-Arts since 1880, and officer of the Legion of Honour since 1872. At a time when French sculpture counts so many illustrious names Chapu had the right to a place among the first, and his work united the highest poetry with the greatest power in anatomical modelling.

Such as he was in art, such his friends found him in private life. He was of a nature simple, upright, modest and sincere, keeping apart from cliques and coteries and from the quarrels of parties. He will leave with all, in these times of indifferentism, the pleasant memory of an artist really believing in his art, loving what was beautiful, faithful in his friendships, and always kind to young artists, who loved him much. He leaves several important works unfinished, among others a bust of Duc, the architect, intended for the Palais de Justice, and two marble statues, "Le Chant" and "La Moisson," commissioned for the decoration of the Hôtel de Ville.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY.—Mr. W. Lee Beardmore, A.-M.Inst. C.E., on the 29th ult. read a paper before a meeting of the Civil and Mechanical Engineers' Society, held at the Westminster Palace Hotel, on "Compulsory Registration of Certain Buildings as to their Sanitary Efficiency." The chair was occupied by Mr. R. Nelson Boyd, M.-Inst. C.E., the President of the Society.

METHOD IN COLOURING.*

IT augurs well for the future of architecture that the study of colour is receiving more attention among architects than formerly; and the last meeting of the Institute was full of promise.

Among the great architects of recent times colour has not been a strong point; indeed, in many cases, it is quite evident that a sense of good colouring has been entirely wanting.

The knowledge of colour and power to apply it, have not been regarded as so essential in general practice as other capabilities, such as structural power, knowledge of style, &c. These qualifications are more common than the colouring faculty.

Among all artistic workers it is evident that form-development is of easy growth; compared with it, the true colour feeling is a rare thing, and on this account not only have many architects been at a disadvantage in dealing with colour, but their efforts to get good colour from others have, as a general rule, been discouraging.

Speaking broadly, there does not seem to be much scope for colour display in our external work, but this is largely owing to the colour limitations of the materials that are suitable for our buildings; and we can never forget that ours is a very different climate from that of Italy, for example, where beautiful marbles can be freely used, without the fear of their being soon destroyed by damp, frost, and the deleterious atmosphere of our great workshop towns, cities, and even country suburbs.

Artistically, it will, perhaps, be admitted that pictorial effects in our large cities, and in general landscapes, as far as buildings are concerned, owing to our variable atmosphere, depend more on mass and grouping than on colour, provided the prevailing tone be not objectionable.

I need only call to mind the effect of a picturesque building, nestling among trees, with the quaint mass of gables, chimneys, and towers rising against the evening sky; and in our large cities, to the pictures, perfectly fine and mysterious, which are occasionally observed in winter time, or on summer mornings and evenings, when the sun with his warm complementary light is breaking through the mists or fogs.

It may be said, then, that there is no great call for effort after colour display in our external work. Mass, proportion, and play of mouldings, carvings, and other subordinate enrichments rendered in suitable materials, for the most part unimportant in colour, seem to give a generally satisfying effect.

Before everything else it must be stated that what we lack in this country is sunshine, or, as Professor Richmond put it the other evening, we want light.

Our northern regions are not favourable for the development of strong or fine colour treatment. The pitch of sky and surroundings is for the most part low in tone. The force of what I am saying must at once be apparent to those who are familiar with the "sunny south." In occasional dull weather in Venice, for example, such weather as we have good spells of at home, the whole place is far from striking as regards colour; but, when the sunlight breaks out, the display is perfectly enchanting, all seems to have been arranged to harmonise with the splendid glow which is cast over everything, or, as I think Mr. Waterhouse has it, the sun-glow harmonises everything.

While our thoughts are towards Italy, special reference might be made to Pompeii, which shows a colour development quite unique, and bears the strongest testimony to what is being urged, that sunlight is the great factor in calling forth and strengthening and refining the colour power.

Another consideration is, that in our desire to obtain the pure colouring of nature, we are limited by the fact that we have to work with pigments, which are *matter*, and not light; and we cannot, except in a limited way, work by the scientist's theories, which are based on the laws of light.

The spectrum shows to us that the primary colours in a ray of light are red, green, and violet. But in our working indivisible primaries, viz., red, blue, and yellow,—we have to accept a lower scale of colour than in nature, and this must be patent to all who have experimented with the colours in their right proportions on a revolving disc, when, instead of white, we find a dull grey, and the best we can attain to in aiming after natural effects is to render all in right relation.

Familiar illustrations of this will be found in the works of great painters, for example, Rembrandt in figure painting, and Constable, Corot, and Rousseau in landscapes. In their hands the main point in the subject has, as nearly as possible, the natural value given to it by juxtaposed tones, which are unnatural and greatly exaggerated.

As I am addressing an architectural association, it is of importance to note that architects are chiefly dependent on others for the final results of colour arrangements, being unlike artists, who have nothing between their inmost thoughts and the fullest expression of them on the canvas.

The disappointments and worries that arise through mishaps in manufacturing processes, and the handling of the brush and colours by workmen, are matters of constant experience.

It cannot be denied that in this connexion a great deal has to be done in the way of educating our working decorators before good work can be got.

In the process of painting, several coatings are generally required, and unless these are skilfully applied the result in the finishing is altogether disappointing. It is a common thing for a directing artist to be told, when he expresses his disappointment after the colouring has been coated for the last time,—"Well, sir, it has gone down in the flatting," or to find that the ground is shining through, or something else which indicates either a total want of colour feeling or want of skill in handling the various stages. A few broad colour principles clearly grasped, and the practice of insisting on seeing what is actually to be applied, to achieve the final effect, will save much disappointment.

In internal work, white, or white slightly tinted, has been much in vogue. This fashion can only be justified because of the cleanly appearance it gives, and the ease with which the British workman can do it, but anything near white is bad, from a decorative point of view.

A more hopeful state of things has been showing itself of late years in the low-toned combinations which many architects and decorators have indulged in. They remind one of many of the modern pictures of the French school and of the Low Countries, or some of the impressionists, which often strike us as being very easy of production. One cannot well give offence if the low scale is adhered to; and while in good hands fine results are achieved, generally speaking the most favourable criticism from a colourist's point of view is that they are unobjectionable. One serious result of working in a low scale is, that in a very few years the bloom will have gone here and there, for colours will alter on the walls, floor, and in the cloth stuffs, and fustiness will be the result.

Every artist has to lay his account, for better or for worse, with the effect of time on his work, and if the full wearing quality of each coloured surface or material could be ascertained, it would be desirable to arrange the colouring on a crisper key than would be desired, so that the mellowing influences of time and the accretion of dirt, which the President of the Royal Scottish Academy says is an accompaniment of Art, may complete the charm intended. Mr. Frith, once talking about this subject, mentioned that Lee the landscape artist painted in cooler and crisper colours than he would have done, leaving time to do its mellowing work. One would think that some who supply our finest wall papers arranged their colours with the same object, for the effect of them is often much too sharp.

It may be interesting to some to illustrate, in a way that lies ready to my hand, the effect of time upon a particular coloured surface. Here [showing specimens] is a sheet of modelled canvas. One portion of it is of toned gilding, the next is lacquered to represent the effect of age, and the third section represents the same mellow lacquer scumbled over with a neutral colour which fairly represents the effect produced by the dust of ages. In looking at the splendid examples of colour in our National Gallery, the desire to reproduce such effects is, of course, natural; but, as was plainly said by Sir John Millais some time ago, the charm is greatly accounted for by the effect of time, but the transcendent power of the authors of such work is felt the more their work is studied. I had the pleasure recently of spending some time in the early morning hours in attempting to match exactly what I thought the finest colours in several pictures. The result of my studies I put before you. They will show you that they are not in themselves strong or very beautiful in colour, and must require the juxtaposition of other colours to give them their true value. Nothing could more clearly demonstrate than these examples that good or bad colouring is mostly a question of relation, and that a colour that looks well in one place may be quite unsuitable in another.

To an architect, perhaps the greatest surprise he could have as to the artistic value which age imparts was shown when the new black and white marble front of the Duomo at Florence was almost completed, as it showed itself against the mellowed colours of the dome. The effect was harshness itself.

In our street architecture, we, in our generally backward state as regards colour, will be subject to much that cannot but be objectionable, because of the rival interests of neighbours along the same street or avenue. On this line of thought I may relate an amusing incident of which an Academician told me. On varnishing day he saw Turner and David Roberts sitting side by side, working each at his own picture. Roberts' picture was generally a neutral one, and Turner's was on a higher scale. The two men were silent; but Turner, with evident enjoyment, was intensifying his sky, much to the annoyance of Roberts, whose side-glances were very frequent. At last Roberts broke the silence by remarking, "Aren't ye makin' that very blue?" The inference from this is plain enough.

An immense and permanently satisfactory impetus would be given to colour development in our buildings, if the yellow terra-cotta which is now being employed were to become more general. Its sound qualities as a building material have, both for town and country, been well attested by time, but its imitation of yellow sandstones should not be the ultimate aim of the architect, or of the producer of it. Firmer tints of yellow could be employed which would be more of a complementary to the general bluish grey and green of all around us, and would be forcible, although never offensive, if placed beside cement, stone, or ordinary brick-work. The use of red terra-cotta, also, is most welcome, and, either in the mass or for heightening the effect of the yellow, is very valuable.

I venture to call attention to a building which has just been erected in a smoky city, and is a welcome contribution to the revival of coloured effects in external work. The Messrs. Templeton, of Glasgow, in building a large extension to their carpet works, resolved that, as the site was most favourable, they would give an architectural expression to their building which would be in harmony with the high standard they aim at in their fine carpet productions, and by the employment of Mr. Leiper as their architect, a result has been achieved which all must be glad to see. The design is early Venetian in character, and the colour-scheme is chiefly based on the three primaries got by red sandstone, red bricks, and terra cotta, and the yellows of terra-cotta and soft glazed bricks, some of them inclining to greenish grey, while the blues are of Rust's mosaic, and are introduced in panels in the window-heads. Soft olives and dark blues, also, are introduced into window shafts of Maw & Co.'s work.

Every colour scheme should be prompted by a distinct idea, sympathetic, and of such a nature as to produce more or less of pleasureable excitement. A place of public entertainment, where we do not usually spend more than a few hours at a time, might be decorated on a high scale in keeping with the generally prevailing feelings of a public audience. A place of worship, naturally demands, on the other hand, an air of impressiveness, restfullness, and want of any distracting elements. Our houses should not be subject to any absolute rules, except that they be suited to the temperament of the occupants. In small apartments quiet colour symphonies are best, but if it please us better let us have a Louis XVI. or Adam Chamber with as much-restrained delicacy of treatment as may be desired, or we may have a room arranged as the setting of elegant litter collected in many wanderings or drawn from Japanese or other bazaars, and so with all our other apartments. If the house is intended for the home of a toiling man and his family, a feeling of rest and cheerfulness should prevail, but where hospitality is

* From a paper by Mr. W. Scott Morton, read before the Architectural Association on the 24th ult., as elsewhere mentioned.

intended to be freely dispensed, a higher pitch of colour is more appropriate, as being more in keeping with the spirit of the indwellers, and more to the pleasure of temporary visitors. The influence of colour on the spirits is worthy of attention, particularly in the case of those who are of a sensitive disposition. I know of a case in which a delicate person was perceptibly improved by being moved into a room which was specially decorated for her. This subject has been studied to very good purpose by Dr. Clouston, who is the able head of the greatest lunacy asylum in Scotland.

When Mr. Bond, to whom the *Pall Mall Gazette* has given the title of the "Opal King," arrived in this country, he was a stranger, and was taken suddenly ill. He lay for weeks in St. Thomas's Hospital, and, during his lowest moods, he felt an indescribable ill will towards one nurse, but the ministrations of another seemed those of an angel. He accounted for this afterwards simply from the fact that one was always dressed in black and the other in white or light prints.

Among our working decorators, and more frequently the public who employ them, there is only the most vague notion of what is to be done when a decorative scheme is begun. "Know what you have to do and do it," is a good maxim. It helps greatly towards a good result if any decidedly beautiful thing or sentiment is set before one at the starting-point. For example, if a scheme suggestive of spring is proposed, does not the mind at once find itself in an apartment with an exposure to the morning sun, with the large spaces of cool tints of greyish green or yellow, and choice bits of soft whites, yellows, lavenders, and hypatica and saylla blue tints. Or there may be the sentiment of autumn desired, which could be well expressed in a room of a northern exposure, where the glow of colour on field and trees against the grey-blue distance and purple hills, could be so rendered as to make an unattractive room speak of fulness, contentment, and homeliness.

Many other suggestions in this direction will readily occur to all who care to pursue this line of thought.

In the disposition of colours in various apartments communicating with each other, much can be done to give value to each treatment by alternating the lightness and depth of the colour pitch and by the use of complementary colour schemes. The eye is soon satisfied with a colour, and seeks rest in the opposite of that colour, and if, say, from an apartment decorated in soft reds, golden browns, and olives on a quiet scale, you go to one tinted in pearly grey greens, soft yellow, and rosy tints, the effect is always pleasing; and, if the scales be properly balanced between such apartments, the pleasure of returning from the brighter room after a little while is also manifest.

For interior work, when the proportions are carefully designed by the architect, the utmost care is needed in the colouring, and broad masses only, distinctly readable, should be allowed, so that the full expression may be given to the scheme; but if in cases where the proportions are sought to be altered, much can be done by the use of advancing or retreating colours to alter these.

But in the treatment of large rooms especially, a sense of scale and fitness must always be present in our colour efforts. A word of caution is necessary at the present time, because of the profusion of well designed and richly coloured decorative fabrics. The producers of carpets, silks, cottons, and woollen stuffs, and all kinds of wall decorations, strive to place before their buyers such goods as will impress them, and it is often observed that when inexperienced men make an effort to obtain a rich effect the result is such that you turn away in weariness and satiety.

Simplicity and readableness in colour design always characterises the work of the man of power, and if a definite idea is grasped, whether the subject embrace many sections or be a single object, the clear expression of the designer's mind should be brought out. Much care is evidently required in the general design of the architect, so that the full value of the final coloured scheme should tell as the climax of his aim. One does not need to look long among our public buildings for evidence to prove that much costly work is thrown away because of defective conditions as to situation and lighting; and, if the full measure of study were bestowed on what might be termed the focussing point, much expense in tiresome elaborateness might be saved, and a suitable inducement offered instead, to the skilled designer who would readily, from the simplicity of the *motif*, enter into the architect's ideas for the production of a choice example of his work.

One all-important consideration in colour schemes is flesh colour; its value in all its expressions as a colour factor is manifest in all the great picture-galleries. But my point now is, that flesh colour ought ever to be considered in one-colour schemes. I recently asked a distinguished artist his opinion as to a particular colour for decorative purposes, and he at once laid the coloured fabric alongside the back of his hand. This suggests a very ready way of helping decorators to determine whether a colour is right or wrong. The outrageous colour distractions amidst which we have often to mingle with our fellow beings would soon greatly diminish if this simple rule were kept in view. The very fact of flesh colour being an important element of all the greatest work of the past, is proof that it can always be considered, and yet room be left for endless variety of effect.

All decorative schemes which have to be associated with pictures, bronzes, statuary, &c., require special treatment. These objects are much more valuable than any merely decorative arrangement, and their setting should be such as to bring out their full value. One sees often, in prominent positions too, grievous transgression in this. I have in my mind a reception room in one of our most fashionable buildings, where there are some celebrated pictures, some of them of a rich mellow tone, but they are greatly injured by a wall paper of a generally cold effect, and with a strong wave line through it.

It is a safe rule in arranging a background to strike the general middle tint for depth, either for old masters, modern oil paintings, water colours, or etchings, and for a sculpture hall, a colour sufficiently clear to assimilate with the white, and of a tint to catch the colour of the transparent effects and also the shadows of the marble.

It will readily occur to every one of good judgment that a perfect feeling for the style of architecture is needed in the application of colour, as the style must distinctly control it. A study of the Grecian polychromy teaches useful lessons for severely classical work, and the nerve and breadth of the best Gothic decoration—and the strong intellectual handling of the early Renaissance, are fraught with many useful hints. The Alhambra work is peculiarly interesting, because of the use of the primaries with gold, white, and black. These in themselves are difficult to harmonise, but being applied on modelled surfaces, a great variety of neutrals is thus obtained from high lights, shadows, and reflections, which greatly qualify the strong colours.

The texture of the surface to which colour is applied is a matter of paramount importance. The *thin* effect of a smooth surface is felt by all artists, and a restfulness and colour charm is awakened by a textured surface, but clearly the colour tone is lowered by the texture. This you will see by placing alongside examples of wools in ordinary yarns, and the same woven into velvet material. It can also be seen in a very marked degree by comparing a plain gilded cardboard with a piece of plain gilded canvas, and this can be carried further into various degrees of broken, or moulded surfaces, as in the examples of modelled canvas before you.

There has been an interesting development in the United States of textured work, in rough, plain plastering, but with the surfaces slightly cast about with the finishing float, and it occurs to me in connection with this to mention the name of Daniel Cottier, who was, in my humble opinion, one of the very first decorative colourists, but whose career closed suddenly on the 5th of this month in Florida. In the work of Colin Hunter, one of our sea painters, texture is a very noticeable feature, and it tells very powerfully in his hands in giving a luminous effect. On one occasion, being with a number of artists in his studio, a discussion arose during Mr. Hunter's temporary absence from the room as to how the trick was done, and some ventured the opinion that most was done by the palette knife.

The method of lighting an apartment affects the colour greatly; and, speaking of texture, it cannot but be said that the usual top-light of our picture galleries is a trying one, chiefly because of the question of texture just referred to. Often, to avoid the glare from the reflection of the roof, pictures have to be tilted forward, and consequently the whole tone is lowered. Light, falling as near as possible at the angle at which it falls in an artist's studio, should always be arranged where practicable for pictures. The introduction of stained glass into any apartment at once alters the colouring of it, and it is scarcely necessary to state that if stained glass is an important element in any interior there is little need for anything else, unless it be but an aid to the splendour of that powerful decoration.

As shining surfaces reflect the light thrown on them, when the light is ordinary white light, the effect on colour is, as a rule, most hurtful, but in the very common lustreless finish of "flatting" there is the almost certain danger of the loss of bloom in colour. This is very much owing to the want of technical skill on the part of the director or workman in not grounding the work of a full enough colour, and also to the free use of white which is mixed with the turpentine to give body to the finishing tint. It is better to work up to the finished effect with a medium containing oil sufficient to give at least an egg-shell gloss, and then to take off what lustre there may be by a very thin wash of a sizing medium or spirits of wine with a small quantity of clear shellac in it.

A few colour laws which every colourist finds of value may now be briefly stated:—

1. Different tones of the same colour tell well beside each other, or in the same composition. Take, for example, all the tints on a piece of self-coloured velvet or silk. There are unending gradations of these. Much interesting work has been done on this idea on the lowest scale of colour, viz., that of greys. Mr. Waterhouse expresses his predilections for pearly greys and drabs and ivory, red or green, with very small points of delicate turquoise blue. Omitting the red or green meantime, his predilections for the pearly greys and drabs, and ivory, are well worthy of being kept constantly in mind, as these are in sympathy with the general greyness of our climate and surroundings, but it will strike all colourists that unless these tints are handled in a masterly way there is the danger of insipidity. Marvellous things, however, have been done in greys, as all students of the works of Velasquez know. The late John Philip, — known as Spanish Philip,—acquired much of his power in colour by the study of Velasquez, particularly in his handling of greys, and, one day, being impressed with a very powerful Spanish study he was at work upon, he showed me his palette and remarked that he never used a positive colour but got the force he desired by the use of greys. "Mind your greys" was a common remark to students, and many of his charming colour jottings of scraps of old grey walls bore witness to his appreciation of grey; but from greys working on the principle of tone upon tone of the same colour all through the different primaries, secondaries, and tertiaries, there is scope for all manner of delightful symphonies.

The law of complementary colour is all important. Its value is illustrated all over the face of nature. Let me as a simple illustration refer you to a piece of Queensland opal. Looking on the face of it, there are the soft greens, blues, and purples; but on looking through it towards the light you have the most perfect complementary tints to these colours in the soft golden reds, ambers, and yellows. A clever touch of a complementary tint gives clearness to the symphonies just referred to; and the complementaries can be applied from strength to strength until the most powerful effects are produced. But it is evident that the larger and simpler the masses of colour and their complementaries, so much greater will be the force. A Persian carpet may be full of the most beautiful contrasting combinations, but its general effect may be far from striking. Coloured hues on neutral grounds have a pure and telling effect, more so than tones of colour which are produced more or less by grey. As to the primary red, all good reds are based on yellow. Pompeian red is what is generally thought of when a strong, fine red is required; but it has seldom been seen in this country, it is not understood. Dr. Murray, keeper of the Greek and Roman Antiquities in the British Museum, has passed through a time of much affliction in his efforts to get it on some of the walls of the Museum. A day or two ago, I sat at lunch in a large room, the walls of which were painted with so-called Pompeian red, but what with

its cold purply tinge, and the reflection of a white ceiling and deep frieze, the faces of all in the room had a cold, wintry look. A careful effort to catch the precise hue or tone of the Pompeian red from some of the best slabs in the Naples Museum, impressed me with the amount of yellow there was in it. I was trying to match it in water-colour, and found the nearest approach to the red was got by a mixture of Italian yellow, burnt sienna, crimson lake, and vermilion. A very fine example of old red velvet picked up in Florence will also prove what I am saying, for the surface is so worn that the fine yellow grounding is showing through. Let me also draw your attention to a red dress in Tintoretto's picture of St. George and the Dragon in the National Gallery, of which a colour match is before you. The fine quality of this red arrests us. A powerful complementary green, however, gives it intensity, but an analysis of the colour gives a great amount of yellow.

As to yellow, its value has been referred to in my paper, and so convinced am I of its usefulness that I always would advise the pot for mixing colours from, to have more or less of yellow in it. Owing to the luminous nature of yellow, as well as red, large surfaces require to be very broken in the tint. The placing of a matching of Pompeian yellow and red, beside pure primaries will be quite convincing. I have heard a powerful colourist remark that good colour ever goes towards yellow, and the worst towards purple.

Blue is a difficult colour to handle. This must impress all who make a tour through the Italian and other churches, especially as seen in the stained glass. In broad treatments it can only be used in a most modified degree to be pleasant, and it requires a strong infusion of warm colour. I remember an artist tinting a luminous blue sky at Rome on white paper. He began with a wash of delicate rose madder and afterwards tinted in blue. Of all nature's blues among flowers the scyllas and forget-me-nots may be selected as among the finest, and both reveal the presence of rose tints mingling with the blue. Every good colour composition should have in some degree the three primaries.

A patient study of M. Chevreuil's work on colour will repay the student, and much that is put forward by M. Chevreuil as to the influence of one colour upon another would be of great value if carried in our minds.

Gilded treatments are always pleasant if rightly introduced, but here again a great modification is necessary in large masses; and, fortunately, there is much scope for obtaining fine effects by lacquers and coloured glazes on the luminous body of a gilded surface as a range of lacquers now in constant use will show you.

I think it may be taken as a rule that any serious colour effect cannot be directed from an office table, because there are always conditions which to a greater or less degree qualify the tones or colour tints. We have to consider the kind of light that falls into the room from a northern or southern sky, or perhaps a reflected light from the street paving, or houses opposite, and also the amount of light. These considerations are felt to be of consequence when one takes up the palette knife in the room. Then, if there is a direct sky light falling into the room, the reflection from the floor, which may be carpeted, counts for much as its influence is felt on the ceiling and parts of walls not reached by direct light.

One word of great value in commencing to work out a colour scheme is *assimilation*, and its practical value can soon be tested by mixing a pot of what might be termed the dominant or key colour, and from that pot take more or less colour for harmonising and contrasting every tint employed. An extreme illustration of assimilation of colour will occasionally be found on the Academy walls in the portrait of a judge or cardinal, say by Ouless or Pettie. If you shut out with your hand the red dress, and look at the flesh colour, you will see what an amount of red has had to be added to the natural tint of the skin to enable it to hold its right relation to the dress; and so more or less all through.

In my attempts to match the finest points of colour in the National Gallery, I was struck with the fewness of the colours I required. Those I used were a medium yellow (which happened to be Mander's yellow), middle chrome, primrose chrome, burnt Sienna, vermilion, scarlet lake, Prussian and Antwerp blue, Brunswick green, Vandyke, white and black.

At the last meeting of the Institute much that was instructive and suggestive was said regarding the employment of mosaics, fresco, and *tempera*, and the employment of these methods of decoration ought to be in every way encouraged. The increasingly-migratory habits of our population, and the shortness of leases, especially in London, are, however, great drawbacks as far as domestic work is concerned. The revival of these decorative mediums on old principles would impart a seriousness and worthiness to many associated methods. The most interesting and skilful treatments of these are clearly those which have caught most of the spirit of the architecture, and hold their place as accesories or crowning embellishments. When these enrichments are found developing themselves in the roundness of modelling and fulness of detail and colouring, as seen in pictorial art, then we conclude we are approaching a period of decline in decorative art. The vigour and simplicity of the mosaics in St. Mark's at Venice, or in the apse of San Clementi at Rome, are such as must hold their value through all time. The same may be said of some of the tapestries in the Vatican galleries, which, when seen alongside those designed by Raphael, are greatly superior because of their architectural feeling. Mention also should be made of Giotto's walls in the chapel at Padua. These paintings are very simple and elementary, and may be regarded as the beginning of the great Renaissance development of such work, but, although elementary, they express their object and make the small chapel a place of great interest.

The frescoes of some of the earlier masters following Giotto display marked capacity for catching up in their work the architectural feeling of their surroundings.

The influence of good men is most direct, and, without mentioning the names of the living, it is undeniable that such men as the late William Dyce and Alfred Stevens were full of the right spirit; and one can hardly speak of J. D. Sedding as being no more with us. I shall never think of him as dead; his lovable character and enthusiasm will speak with beneficent power while memory lasts to all who knew him, and it is to be hoped that soon the Institute will be in a position to arrange an exhibition of his work.

There is one talent which we all possess, and that is individuality; and as the colour field is so wide-reaching, there must be stretches in it in which we can all develop our own selves, rather than being the slaves of fashion or passing whims, and I am sure I cannot better close my paper than by again alluding to one remark of Professor Richmond, that what we want in this country is light; and to another, from the same source, that "the dignity of good work is the thing to keep before young men."

[Some notes of the discussion which followed will be found on another page.]

NOTES FROM AUSTRALIA.

A MOST important step has lately been taken by the junior members of the profession in Sydney in the formation of an Architectural Association on the lines of its wonderfully-successful London prototype. It has now been fairly launched, has already had its first general meeting, and already numbers no less than seventy-five members,—a result, considering the comparatively small community of which we form part, which is most gratifying. Hitherto there have been no facilities for professional intercourse between the younger members of the profession, but the new Association will supply this need. The rules have been drafted very much on the lines of those of the older society,—and, indeed, several members of the committee were members of the London Association. The President is Mr. S. Hurst-Seager, A.R.I.B.A., who for some time was connected with the office of Professor Roger Smith. The vice-presidents are Messrs. G. J. Oakeshott, A.R.I.B.A., and G. D. Payne, both Englishmen, and well known in London,—the former especially by his book on the "Details of the Italian Renaissance." The honorary secretary is Mr. F. W. Marks, A.R.I.B.A., also an Englishman. It will thus be seen that the Association commences its work under the best auspices, and there is little doubt but that it has a prosperous future before it. The hope of the profession in Australia is in its young men, and if they are influenced by the spirit which pervades the members of the new Association, the standard of professional and artistic attainment will be appreciably raised before many years pass by.

In the colonies of Australia the respective Governments carry out a far larger proportion of public works than in any of the other countries in the world peopled by an English-speaking race. As a natural result, these works being under the control of politicians, the exigencies of the moment, instead of the intrinsic merits of the works, are apt to exercise an undue influence when a selection of one or two out of many proposals has to be made. Branch lines of railway, which do not pay for the axle-grease bestowed on their wheels; harbours formed for the use of a few coasting vessels; and public buildings four times as large as the needs of a provincial town demand, are the frequent result of this system. In New South Wales the evil has become so patent that a Standing Committee of Public Works was appointed, consisting of members of both Houses, to whom the proposals are submitted for report, and they have done such good work that it is probable all the other colonies will follow suit. Indeed, Victoria has already instituted a Parliamentary Standing Committee on Railways. For some weeks past a subject of considerable interest to the architectural profession in Sydney has been before the Committee,—viz., the uncompleted structure of the Sydney Hospital in Macquarie-street. It was commenced many years since, and the walls carried up to the level of the first floor at an expenditure of about 60,000*l*., when the funds ran out, and a new Government being in power inimical to the scheme, further progress was impossible. The present Government, being desirous to complete the building and redeem the city from a standing disgrace, the subject was referred to the Public Works Committee, and a mass of medical and architectural evidence obtained. The report of the Committee has not yet been published, but it is quite evident that the building will not be completed on its original lines, which would involve a total expenditure of 200,000*l*.

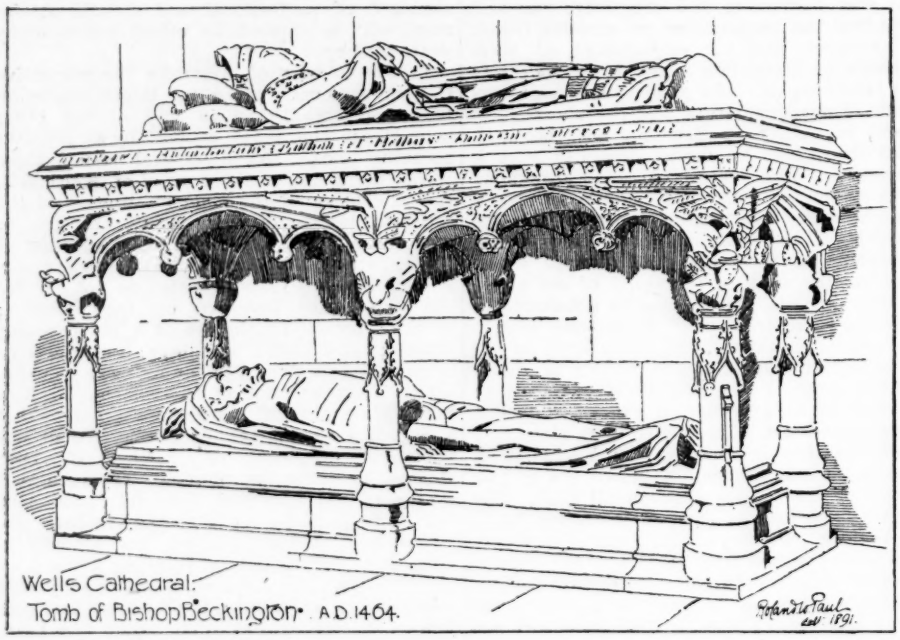
The site on which the Hospital stands on the edge of the Domain is the finest in Sydney, and the whole of this side of Macquarie-street will undoubtedly in the future be graced by public buildings of the highest class, such as the Law Courts, Parliament Houses, &c.

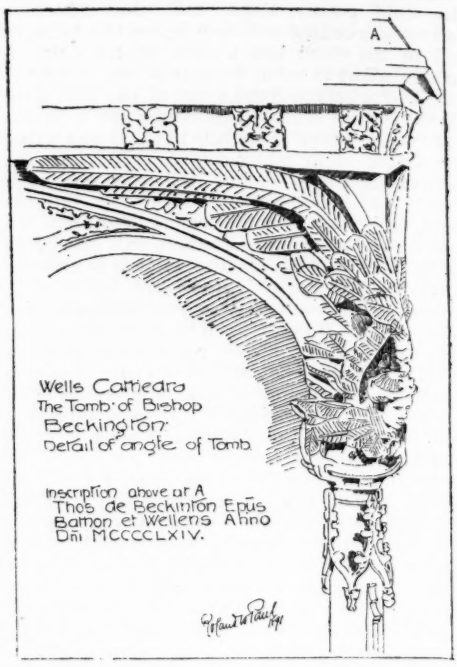
Mr. W. L. Vernon, the present Government architect, with wise prevision, recommended that Macquarie-street should be increased in width from 60 ft. to 100 ft.; but this would involve the setting back of the Hospital. Macquarie-street would then become the one fine street in Sydney, and so great an improvement would be cheaply purchased even at the sacrifice of the whole of the money spent on the building. It is to be hoped that Mr. Vernon's scheme will be carried out.

COMPETITIONS.

Baths, Bacup.—In reference to the statement under "Competitions" in our issue of April 18, to the effect that the estimates from Mr. Wilson (who stood first in the list of competitors) "being unsatisfactory, were rejected by the Committee," Mr. Wilson writes denying the correctness of this statement, and maintaining that it was owing to the death of the original intended donor of the funds, who had selected him as architect, that he was not employed. His letter goes into private matters which we do not feel at liberty to drag into print.

"AN OLD WRITER ON OLD TIMES."—We regret that a sentence was included in the article under this head last week which has given not unreasonable offence to one at least, and perhaps to more, of our Catholic readers, to the effect that the Catholic creed of the present day rases out the Second Commandment against graven images. The article was mainly composed of quotations from Fuller, with a few remarks interspersed; the quotation commas in the passage referred to were inadvertently put in the wrong place, and as the date, "1891," escaped notice in reading the manuscript, it was left as a quotation from Fuller, whose diatribes, at the distance of more than three centuries, can do no one any harm. The statement appears to be entirely incorrect; but whether true or not it would have been erased at once had we recognised that it was a remark of the author of the article, and not a quotation from the "old writer," as we never under any circumstances admit reflections on the religious faith of any community.





Illustrations.

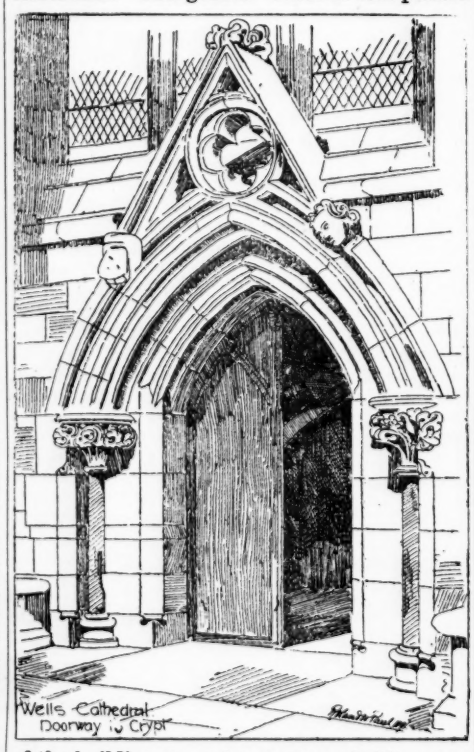
WELLS CATHEDRAL.*

UNLIKE the cathedrals hitherto given in the present series, Wells shows no traces in its fabric of the Norman church. Although it is known that a building stood on the site in very early times, and that a church of some size was standing in Bishop Robert's time (1135-1165), the building now presents to the eye nothing that can be placed at an earlier date than the end of the twelfth century. To this period and the first portion at all events of the thirteenth century the portions shown black on the plan belong. This includes the whole of the naves, the central tower to the ridges of the roofs, the first three bays eastward of the tower, the transepts, and the west front and base of the two western towers. Various theories have been advanced from time to time as to the order in which these portions were built. The western front is of distinctly later type to the plainer work of the nave, and it is reasonable to suppose that during the long period which elapsed between the destruction of Bishop Robert's church and the completion of the Early English building by Reginald and Joceline, the works began at the east and advanced gradually westward. At this time the ritual choir would have extended a short distance west of the central tower, and an aisle or ambulatory stood at the east end. This aisle is easily traceable on reference to the plan. The peculiar feature of the Early English work at Wells is the use of the square abacus in the caps of the arcade. It has a very un-English appearance, and suggests Canterbury influence. Projecting south from the transept there would seem to have been a cloister, and nearly half-way down, on its eastern side, was a chapel known as the Lady Chapel "juxtra claustra."

In 1885 excavation revealed the plan of an octagonal building, the centre line of which coincided with an Early English doorway still *in situ*. This probably was the building referred to, and which was also used as a chapter-house (before the present one was built on the north side) and as a burial-place for some of the De Bitton or Button family. We shall have occasion to revert to this Lady Chapel again.

The next important addition was the magnificent chapter-house standing on a crypt or substructure. Strictly speaking, it is not a crypt, its level being only very slightly lower than that of the church itself. The entrance to it we give in the subjoined sketch. This portion is of distinctly earlier date than the chapter-room over it; and we have indicated it as "Transitional" on the plan. The unique staircase and the chapter-house itself are Decorated work of the time of Bishops Burnell (1274-1292) and Wm. de la Marchia (1294-1304).

Following this work came the elongation of the presbytery, making it of six bays instead of three, and the new Lady Chapel with the lesser transeptal chapels flanking its vestibule on either side. The general effect of this portion



of the building as an interior is probably not to be surpassed in England for grace and cleverness of design. The new Lady Chapel, like the old one, "juxtra claustra," was designed on an octagonal plan—in this case somewhat elongated in form—and even the little sacristy on the south side (now destroyed, but shown on the plan) was in itself a semi-octagon. During the Decorated period a portion of the central tower was raised, but like some other towers built in Mediæval times, its weight caused the earlier piers to give way, and additional strength was given to them by the insertion of inverted arches on the west, north, and south sides. The serious cracks are still visible in the tower, which was originally intended to be a lantern, but in Perpendicular times vaulted above the main arches. Additional strength was given by inserting flying buttresses in the walls which blocked the lower portion of some of the clear-story windows next the tower. This tower is a very graceful one, the delicate clusters of pinnacles at the angles which were built at a later date adding much to the effect, and contrasting with the somewhat unfinished appearance of the western towers. The cloister which had been protected on the south side by a wall in the fourteenth century, had its western alley completed by Beckington (1443–1466). Alteration had previously been made by Bubwith (1407–1424), who vaulted the east alley and built the present library over it. His arms with the four holly-leaves are in the stained glass in the windows. The north-west tower was also completed by Bubwith, the south-west one being due to Bishop John Harewell (1366–86).

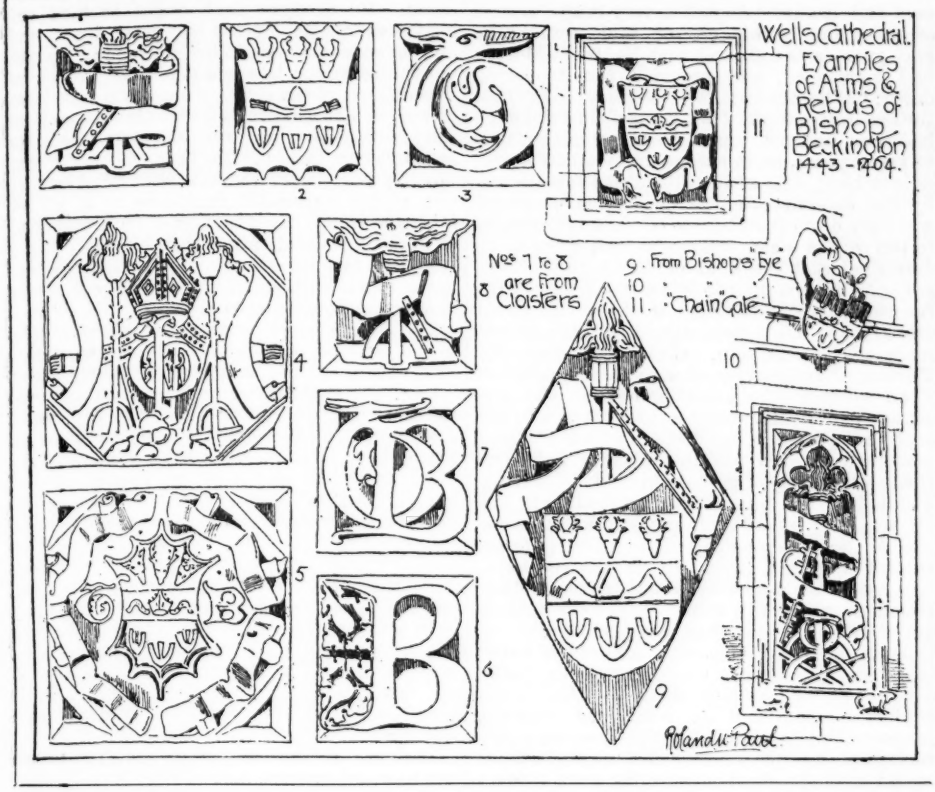
The last addition to the structure was the rebuilding of the Lady Chapel, "juxtra claustra," by Bishops Stillington and King. This was, however, destroyed by Sir John Gates in the reign of Edward VI., and only the fragments of the return walls exist against the cloister wall. It was, to judge by what is left, entirely panelled inside, and must have contained some rich detail. The foundations of this chapel have, however, been traced and are given on the plan.

Such is a rough outline of the gradual growth of the fabric. The general effect of the building and the additions at its eastern end are clearly shown on the plan, and in the view we give to-day taken from the south-east. The original Early English windows of the Presbytery have been blocked, and Decorated windows inserted to match the additional works eastward. The aisles have been likewise transformed, and in later times Perpendicular windows were inserted in all the Early English lancets westward of the crossing, except the great triplet of the west front. This has been also a good deal altered inside, so that there is not a complete window of the Early English period remaining.

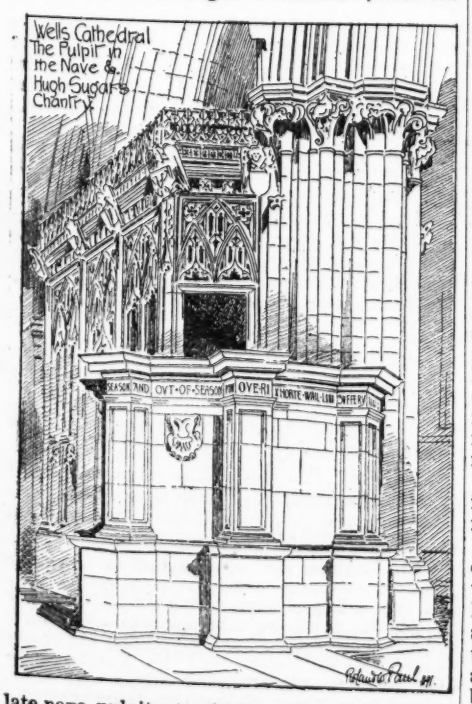
Fine as the whole undoubtedly is as a group, with its unequalled surroundings, and cluster of Mediæval buildings, the wealth of decorative features and details throughout the building will repay the closest examination, and deserves more attention than it usually receives. The sculptured tiers of the west front with its wonderful series of statues claims general attention on account of its prominence, but in less conspicuous portions of the building are to be found a mass of work of all kinds and dates, which the ordinary observer would perhaps overlook.

The ground plan which by the kind permission of the Society of Antiquaries we are able to publish to-day, is valuable as showing the arrangement of the choir-stalls and presbytery before they were transformed by Salvin (1848-1854). It is much to be regretted that the alteration was ever made. The present effect of the stone stalls, set between the piers to give extra width, is cold in the extreme, and the scheme unfortunately included the removal of the beautiful canopy of the altar which Beckington erected during his lifetime near his tomb. It will be seen on referring to the plan what the arrangement was. The canopy, which is of stone elaborately coloured, and more like wood in the delicate treatment of its sculpture, was illustrated in our issue February 18, 1888. It is now

* We may mention here that the first of this series of illustrations of the Cathedrals of England and Wales, viz., Canterbury, appeared in the *Builder* for January 3; the second of the series, viz., Lichfield, in the number for February 7; the third of the series, viz., St. Albans (before the alterations of recent years), in the number for March 7; and the fourth of the series, viz., Peterborough, in the number for April 4. The sixth of the series, viz., Exeter, will appear in the *Builder* for June 6 next.


Wells Cathedral.
Examples of Arms & Rebus of Bishop Beckington 1443-1464.
Nos 1 to 8 are from Cloisters
9. From Bishop's Eye
10 "
11. "Chain" Gate
Roland W. Paul

placed against the east wall of the chapel of St. Calixtus. The tomb we illustrate to-day. Its detail, more particularly the treatment of the angels, is the same as on the canopy, and the whole retains considerable traces of colour. Surrounding it was a good wrought-iron railing, part of which still encloses the tomb, and part is used as a screen to the eastern chapels of the south transept. It is fervently to be hoped that at no distant date this beautiful work may be replaced, and thereby add to the beauty of the presbytery. It was a great piece of vandalism ever to have moved it, and the question of accommodation is so slightly affected that there is little excuse for its remaining in its present dismembered condition. We have not space to enter into the details of the various monuments. There is in this cathedral a very fine series of stone effigies from the early Bishops to those of the seventeenth century. Two chantry chapels similar in the arrangement of their altars (though with no altar tombs) to that of Beckington stand in the nave in the second bays of the nave arcade west of the crossing. That on the north is ascribed to Bubwith, and has his arms against the column at the west end. That on the south side is the chantry of Hugh Sugat, LL.D., one of Beckington's executors, with the



late nave pulpit attached to, and approached from, it, built as a memorial of Bishop Knight (d. 1537).

Of the other monuments the most interesting are those of Bishop Bitton 2nd (an incised slab in the south aisle of the choir), the effigies of Wm. de la Marchia (whose tomb we fully illustrated in the *Builder*, June 12, 1886), Ralph de Salopia, Bishop Harewell, and the later tombs of Bishop Creighton and Bishop Still.

A great number of the windows in the eastern arm of the church retain their fourteenth-century glass. The great east window of the presbytery is a "Jesse" in good preservation, and in the aisles and the Lady-chapel are numerous fragments of the same date. There is some good heraldic glass and an interesting series of figures of fifteenth-century date in the windows of the south nave aisle. Again, in the Chapter-house and its staircase there are still some valuable portions of the glazing remaining. There is not much ironwork left—the earliest example is the inner door of the crypt or undercroft of the Chapter-house, which is of fourteenth-century date.

The amount of decorative carving in various portions of the building is very large. Most of it occurs on the monuments, such as the panels on the tomb of Dean Husee in S. Calixtus' Chapel, the rebuses on the Gunthorpe and Cornish tombs, Hugh Sugat's Chantry, and in the cloisters. In the west walk of the cloister is a very interesting and valuable series of examples of the arms and rebus of Bishop Beckington, which we here illustrate.

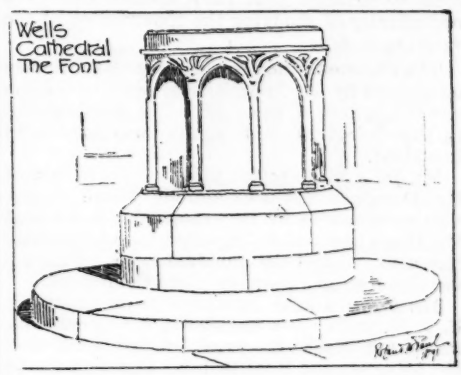
Others occur in various places, chiefly on the gateways to the Close, locally called "Eyes," which were erected during that Bishop's episcopacy.

In woodwork the Cathedral is not rich, but two or three misereres of excellent workmanship are to be seen in the library over the east cloister, and were illustrated in the *Builder*, August 3, 1889.

In the north transept is the celebrated clock, brought from Glastonbury Abbey at the Dissolution. Outside the north transept two armed figures strike the quarters on bells, while inside a seated figure does the same with his heels. At noon four knights revolve in opposite directions and tilt. It is said to date from the fourteenth century, and bears the maker's name and inscription, "Petrus Lightfoot monachus, fecit hoc opus."

The font, which stands in the south transept is apparently Norman reworked, and is the only remaining portion of the earlier church.

No description of Wells Cathedral would be complete without some notice of the buildings which surround it. On the south stands the Bishop's Palace, with its fine Decorated chapel and ruined banqueting-hall of Bishop Burnell's time, the whole building being surrounded by an embattled wall and a moat, which is crossed by a drawbridge at a point nearly opposite the centre of the south front of the cloister. North of the Cathedral are the Deanery, the Canons' houses, and the Vicar's College, with its own chapel and hall, and communicating with the cathedral by a passage crossing the Bath-road to the top of the Chapter House staircase, known as the "Chain Gate." It is a prominent feature in the views of the north side of the cathedral, and shows in a view published in our issue of February 18, 1888. There are several other detached houses, mostly of the fifteenth century, including the Precentor's house and the house of the Master of the



Fabric, both north-east of the cathedral. It must always be remembered that the foundation at Wells was for secular canons as distinct from the monastic rule, and therefore we find a totally different arrangement of buildings. The whole, with the grand pile of the cathedral in its centre, is, perhaps, the most perfect example we have remaining of a Mediæval city.

ST. AUGUSTINE'S, TONGE MOOR, BOLTON-LE-MOORS.

THIS church has recently been erected to supply the wants of a rapidly-increasing suburb of Bolton. It provides about 600 sittings, all of which are free. The site being lower than the adjacent roads, the basement under the nave has been arranged to provide a large parish-room for Sunday-school or other purposes. The vestries are placed under the chancel.

The plan consists of wide and lofty nave, with baptistery on the north side, and a gallery with arcade under, at the west end, for scholars. The chancel is large and well elevated. The aisles both to the nave and chancel are narrow, and used for passages only. The organ-loft is above the choir-stalls on the north side of chancel.

The building is of Yorkshire parpoints, with red Rainhill stone dressings, and the roofs are of green North country slates. The inside woodwork is of pitch-pine, with the exception of the screens, &c., which are painted and decorated.

The works have been carried out by Messrs. Geo. Woods & Son, of Bootle, Liverpool, from the designs and under the superintendence of Mr. R. Knill Freeman, F.R.I.B.A.

*** We may add that this drawing was sent for the Royal Academy Exhibition (where we may presume it would probably have been accepted), and was prevented from being delivered on the appointed day through the negligence of a railway parcel department in not delivering the frame in London until too late.

DETAILS FROM TOMBS AT GRANADA.

THE two illustrations given, of details from the tomb of Ferdinand and Isabella and from that of Felipe I. and Juana, both at Granada, are from the collection of sketches made by Mr. H. V. Lanchester during his travel as Owen Jones Student, to which reference has before been made. They are exceedingly Italian in effect and feeling, and show how strong was the hold at first exercised on Spain by Italian Renaissance Art.

THE GUILD AND SCHOOL OF HANDICRAFT.—The fourth annual spring series of the practical lectures of the Guild and School of Handicraft will take place in the new workshops of the Guild and School at Essex House, Mile-end-road, E., on Wednesday, May 6, when Professor Herkomer, R.A., will open the course with "A Technical Talk."

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—Mr. R. T. Blomfield writes to say that the condensed report of his paper on drawing read before this Society, and published by us (page 335, *ante*) is incorrect, and represents him as saying things which he did not say and would not have said. The report was furnished to us officially by the Hon. Secretary of the Society; we are not responsible for its accuracy.

THE ARCHITECTURAL ASSOCIATION.

AT the ordinary fortnightly meeting of this Association, held on Friday, the 24th ult., Mr. Leonard Stokes, President, occupied the chair.

Mr. E. S. Gale (Hon. Secretary) moved a vote of thanks to Mr. James Brooks for his kindness in permitting the members to visit his new church at Kensington, and for the trouble he took to arrange that they should have the opportunity of studying the construction of the vaulting *in situ*.

The Chairman then read the list of gentlemen nominated by the Committee to serve as Officers and Committee of the Association next session. In this list Mr. F. T. Baggallay was nominated President.

Mr. W. J. H. Leverton said that on behalf of Mr. Douglass Mathews and Mr. Phené Spiers, who were unable to be present, he nominated Mr. Hugh Stannus as President for next session. He also wished to nominate Mr. Edmund Woodthorpe as a member of the Committee.

Mr. Stannus said he wished to nominate Mr. F. T. Baggallay as a member of the Committee, for he felt that in the event of that gentleman not being elected President, he ought to be on the Committee.

Mr. Leverton seconded the nomination.

The Chairman asked whether Mr. Stannus or Mr. Leverton were prepared to say that Mr. Baggallay would serve on the Committee if elected? The rule stated that any one nominated must be willing to serve.

Neither Mr. Stannus nor Mr. Leverton being in a position to speak positively on this matter,

The Chairman ruled that he could not accept the nomination.

Messrs. Webb, R. G. Booth, Gamble, and Parkes were elected scrutineers to count the voting papers prior to the last meeting of the session, when the results of the election will be announced.

Mr. W. Scott Morton then read a paper on "Method in Colouring," the greater portion of which we print on another page.

In the discussion which followed,

Mr. M. Garbutt said he had much pleasure in proposing a vote of thanks to Mr. Scott Morton for his interesting paper. He regretted that there was such a very small attendance to hear it. The Colour Classes of the Association were not half so successful as they ought to be. Apart from the teaching in Mr. Morton's paper, the drawings and specimens on the walls afforded a practical lesson in themselves. The members would do well to bear in mind what had been said by Mr. Morton as to simplicity in colour decoration. He had shown that the highest effects could be obtained with a comparatively limited palette. They might also learn a lesson from the Japanese, whose reticence,—the power of only just putting in as much work as was necessary, and no more,—was well exemplified in the specimens shown by Mr. Morton.

Mr. H. W. Pratt, in seconding the motion, said they were all very much indebted to Mr. Scott Morton, not only for his paper, but for the collection of specimens which he had taken the trouble to bring together in illustration of it. The small attendance was to be regretted, but he hoped that Mr. Morton would not infer from it that architects did not care about colour. It was, he regretted to say, only too true that the Association's Colour Classes had struggled on for many years, and only just managed to keep alive. That was a very curious fact, seeing that colour was such an interesting subject, and one which should certainly be studied, to some extent, by every architect. The architect who had designed a building ought certainly to have a guiding hand in its decoration. He was not quite sure, however, whether they ought to follow Mr. Morton's advice as to decorating the apartments of their clients' houses in a high scale of colour. It was no doubt perfectly true that the somewhat glaring effect of such a scheme of colour would tone down with the progress of time to its proper key; but while that process of toning down,—which would occupy years,—was going on, their clients and their clients' friends would be displeased with it, and by the time that it had toned down to a more agreeable key, the architect's reputation would be gone. The work of one of our leading church decorators, Mr. Butterfield, had been very much condemned on account of its crudeness, or its high tone, or crispness, however it might be described, and there was no doubt whatever that Mr. Butterfield had always adopted a very bright system of colouring in his church architecture; he had gone on the ground that Mr. Scott Morton had mentioned, and provided for its toning down; but he (the speaker) was bound to say that the decorative work of Mr. Butterfield's which he had seen had not toned down, after the lapse of many years, to an extent that made it agreeable to him. One of the difficulties experienced by the decorator in the decoration of rooms was very often the absence of all knowledge as to the way in which the rooms were going to be furnished, and the kind of furniture that was going to be brought into them. The colour of the furniture, and of the carpet and hangings, would often mar the most carefully thought-out scheme of decoration. He agreed with Mr. Morton as to the value of texture in decoration. There seemed to be a development in the present day of raised surfaces for decoration, and such raised surfaces were of great value, inasmuch as they afforded play of light and shade which was of great help to the colouring, and led to the production of exceedingly rich effects. With regard to church decoration, he was glad Mr. Scott Morton had called attention to the subject of stained glass. In his (the speaker's) opinion, it was a mistake to put too much decoration on the walls where there were stained-glass windows; it would be far better, he thought, to spend the greater part of the money used for wall decoration in obtaining better glass than was usually provided. The whole subject of colour was one which was deserving of more attention at the hands of young architects, and he trusted that Mr. Morton's paper would have the effect of arousing more interest in it on the part of the members of the Association.

Mr. E. R. Barrow said with regard to the point raised by Mr. Pratt as to the interference of furniture with the decorations, it seemed to him that the architect should, if possible, have a hand in advising his client as to what furniture he should have, if he did not actually design it. It appeared to him that people had different notions about colour, and that after all it was purely a matter of taste. A client would sometimes insist upon designs and colours which to many other people would be simply hideous. It seemed to him that a proper taste for colour was largely a matter of education. If one went into the houses of the poor and uneducated, one would usually find that very vivid colours were admired. On the contrary, in the homes of better-educated people, low-toned colours were used.

Mr. Paul Waterhouse said he had much pleasure in supporting the vote of thanks to Mr. Morton. The subject was one of great interest, although, as it appeared to him, one of some difficulty; for the more one read and heard of different theories of colour, the more one was puzzled to reconcile the differences between them. The late lamented æsthetic movement left one legacy behind it, and that was, that you might put almost any tertiary colour with any other tertiary colour, without their disagreeing. On the other hand, he believed that Owen Jones said that all true combinations of colour should have in them the three primaries. Surely the truth was that the circumstances under which colour was used in any particular case so entirely altered the treatment that was necessary, that a set of laws that might be applicable in one case would not be applicable in another. He thought that was a point which was particularly exemplified in the difference between the decorative conditions of the interiors and exteriors of buildings. The same rules which applied to the interior would not, he thought, apply to the external decorations. With regard to the danger of the use of blue in decorative work, he referred to a window in St. George's Church, Hanover-square. That window was, on the whole, exceedingly harmonious; but, in his opinion, it was spoilt by the nimbus of blue around the head of the central figure. He was not quite sure whether the lecturer was not a little too hard on the use of white for the interior decoration of houses; perhaps he only meant to condemn the modern craze for white, and nothing but white, or, perhaps, white in two tints. There was in his (the speaker's) opinion great value in the sparing use of white, especially when it was used to connect different colours.

Mr. F. R. Farrow said he had much pleasure in supporting the vote of thanks to Mr. Morton—not that he felt he could say much on the subject of colour, which had always struck him as being a most difficult subject to talk about. He thought they ought to take the advice which Mr. Morton had given them, and not to endeavour to follow fashion in colour, but to use colour in a manner which would be pleasing to themselves. One could not treat colour in accordance with an elaborate set of scientific rules. It was all very well for scientists to talk of the laws of colour, but directly one began to work with pigments, it was found impossible to adhere to a set of scientific rules. As a matter of fact, they had to work by instinct rather than by rule.

After a few remarks from a member, whose name did not transpire, on the observed effects of different colours on mad people,

The Chairman, in putting the vote of thanks to the meeting, said he agreed with what had been said as to the difficulty of talking about colour. That difficulty, he thought, was due to the fact that our language was not capable of describing one's feelings about colour at all adequately. He agreed entirely with what Mr. Waterhouse had said as to the impossibility of applying general rules to colour decoration. He did not think they could lay down hard and fast rules for colouring, although they might accept broad principles capable of variation. As to the effects of different colours on human beings, he had been much interested in what had been said on the subject, especially as he was acquainted with a school inspector who stated it to be his deliberate conviction, as the result of observation and experience, that school-rooms coloured yellow always produced dull scholars.

The vote of thanks having been put to the meeting and carried,

Mr. Morton briefly replied, and the meeting terminated.

ARCHITECTURAL SOCIETIES.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—At a meeting of this Association, held on Tuesday last, the President, Mr. T. Naden, being in the chair, a paper was read on "Besbury Church," by Mr. A. Harrison, who gave a careful account of this little Herefordshire church, and of the old-fashioned village in which it stands. Among the many points described in detail, those having reference to the chantry chapel and the detached tower were of special interest. The chapel is of Late work, with an elaborate and beautiful fan tracery vault, and with elegant traceried windows; and the detached tower, which is one of seven in the immediate neighbourhood, is of massive construction and early date, placed at some distance from the church, and it appears to have been used as a stronghold for the villagers on the occasion of incursions being made by the neighbouring Welshmen. Mr. Harrison also gave many interesting details of the Bishop's Palace and the Preceptory of the Knight Templars, of which few remains now exist, and of other old buildings in the village. The paper was illustrated by a large number of drawings, prepared by Mr. Harrison, and at its close a hearty vote of thanks was, on the motion of the President, supported by Mr. C. E. Bateman, Mr. H. R. Lloyd, and several others, unanimously accorded to Mr. Harrison.

GLASGOW ARCHITECTURAL ASSOCIATION.—On the 25th ult. a party of members of this Association visited the new offices of the Fairfield Shipbuilding and Engineering Company, Limited, at Govan, by permission of the architects, Messrs. John Honeyman & Keppie. The buildings are of red sandstone, enriched with sculpture. The party was conducted by Mr. Howieson, clerk of works.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday afternoon at Spring-gardens, the Chairman, Sir John Lubbock, presiding.

The Main Drainage.—The adjourned report of the Main Drainage Committee contained the following paragraph as to the Hackney Wick, Poplar, and Isle of Dogs drainage:—

"The Engineer has reported that in view of the proposed severance of the Hackney-wick, Poplar, and Isle of Dogs drainage from the Northern Low Level sewer, it will be unnecessary to add further pumping power to that existing in the engine and boiler house at Abbey-mills. He considers, however, that the Worthington engine and pump, ordered from Messrs. Simpson, and now approaching completion, could with advantage be utilised, together with another of the same design, as the pumping power on the proposed new Hackney and

Isle of Dogs sewer. The Council has recently accepted a tender from Messrs. Munday & Son for structural alterations to the boiler-house at Abbey-mills, but on being communicated with by the Engineer, under our instructions, they have agreed to suspend for the present all work in connexion with the seating of the new engine, and have expressed their willingness to forego so much of their contract as relates to the fixing of the new engines in the old boiler-house. They will also undertake the necessary work in the new engine-house on the same schedule of rates as that attached to their present contract.

The Engineer has also, under our authority, placed himself in communication with Messrs. Simpson & Co., and has presented a letter from them offering to make and erect a new Worthington engine and pump of a similar pattern and design, and on the same conditions as relate to the one now in hand, for the sum of 6,480*l.*, being 500*l.* less than their current contract. Having carefully considered this matter, we recommend—

'That the arrangements above stated be approved, and that, subject to an estimate to be submitted to the Council by the Finance Committee as required by the statute, a new Worthington engine and pump be made and erected by Messrs. Simpson & Co., at a cost of 6,480*l.*'

We have further to recommend in connexion with this proposed relief sewer, in order to obtain more complete information as to the nature of the soil through which it will have to be constructed,—

'That, subject to an estimate to be submitted to the Council by the Finance Committee as required by the statute, three borings be made at a cost of 197*l.* by Messrs. S. F. Baker & Son.'"

These recommendations were agreed to, after a short discussion.

Hoarding and Shoring Contract.—The Improvements Committee reported as follows on this subject:—

"The contract for hoarding and shoring in connexion with street improvements and dangerous and neglected structures, at present held by Messrs. W. Brass & Son, will expire on May 31, 1891, and we have, in conjunction with the other Committees concerned—the Building Act and the Corporate Property—had under consideration the question of inviting tenders for the new contract. We are of opinion that it would be very desirable for this contract to be amalgamated with those for 'General Works and Repairs,' which will expire on November 30, 1892, and we have therefore arranged that the new contract for hoardings, &c., shall expire at that date. We have carefully revised the forms of tender, contract and specification, and as time pressed, it being necessary that a tender should be accepted by the Council before the Whitsun recess, we have caused an advertisement to be issued inviting tenders for the works. We recommend—

'That the course adopted be approved.'"

The recommendation was agreed to.

Additional Office Accommodation.—On the recommendation of the Offices Committee, it was resolved to take on a lease of seven years from Lady Day last, at a rent of 325*l.* per annum, the house (well-known to architects) No. 31, Spring-gardens. This will make the fifth or sixth house acquired by the Council for office accommodation over and above that afforded at head-quarters, so that, as was incidentally remarked, the Council will sooner or later have to face the problem of providing adequate office accommodation for themselves under one roof.

Waterlow Park.—With regard to this park, the gift of Sir Sydney Waterlow, the Parks Committee reported as follows:—

"The Council on February 10 last sanctioned an expenditure of 4,900*l.* for the purpose of alterations at this park to suit it for the public use. The work is mainly being carried out by a special staff employed by the Council, but there are certain works which necessitate the employment of a builder, viz., the repair of the Superintendent's lodge; the alteration and repair of the conveniences at the rear of Lauderdale House; the repair of the north-western boundary wall, and erecting unclimbable iron fencing thereon; the restoring of the old terrace and steps at Lauderdale House, and constructing new steps into the grounds; the enlarging of existing entrances, and the formation of a new main entrance, including the supply of wrought-iron gates. We have now to recommend,—

'That the offer of Mr. A. Wallis to execute the above-mentioned works for the sum of 1,090*l.* be accepted, and that the Solicitor do prepare any necessary agreement, the payment to be part of the 4,900*l.* already sanctioned by the Council.'"

This was agreed to.

Statuary in the Victoria Embankment Gardens.—The Parks Committee also reported that

"It is necessary that the statuary in the Victoria Embankment Gardens should be cleaned, and, as it is a work requiring considerable skill and care, the estimated cost amounts to 172*l.* 15s. We recommend—

'That the work be entrusted to Messrs. Farmer & Brindley for this amount.'"

This was agreed to.

Coldbath Fields Prison Site.—The same Committee's report contained the following paragraph:—

"The Council will remember than on February 4 last we reported that by the Post-Office Sites Act, 1889, section 5, it was enacted that the Council might, within six months of the passing of the Act, give notice in writing to the Postmaster-General that it desired to purchase, as an open space, a portion of the site of Coldbath-fields Prison which was coloured green on a plan referred to in the Act, and that the sum required for the purchase was estimated at 8,443*l.*; but unless the desire to purchase was communicated to the Postmaster-General, he was not compelled to pay to the Council the 10,000*l.* which the Act provided he should pay if he desired to retain the whole of the site for Post-Office purposes. On this report the Council decided to make the offer of 8,443*l.*, which was consequently done. We have now to report, for the information of the Council, that a letter has been received from the Post-Office, stating that the Postmaster-General has decided to pay the 10,000*l.* rather than sell any portion of the prison site. We are, therefore, about to consider where a suitable equivalent open space in the district can be secured and laid out for that amount. This will be the subject of a future report to the Council before any definite step is taken."

Proposed New Cemetery at Tooting.—The Sanitary and Special Purposes Committee reported:—

"We have had under consideration letters from the Vestry of Wandsworth, from the Wandsworth and Clapham Union, and from inhabitants of Tooting, protesting against the establishment, by the Streatham Burial Board, of a new cemetery at Garratt-lane, Tooting. We do not consider that the Council should offer any opinion on the question of the suitability of the site, but we consider that in all new cemeteries established in the county a space of at least 40 ft. from the boundary walls should be preserved free from interments, and this view we have submitted to the Secretary of State, whose confirmation is necessary before a new cemetery can be brought into use. We recommend:—

'That the course taken be confirmed.'"

This was agreed to.

The Blackwall Tunnel.—The Bridges Committee reported as follows:—

"In order to afford additional information to the firms who will tender for the works in connexion with the construction of Blackwall tunnel, your Committee are advised by the Engineer that three further borings are desirable, viz., one in Preston's-road, Blackwall, another between High-street and Bedford-street, Poplar, and the third at the junction of Blackwall-lane and Ordnance-road, Greenwich. Tenders for the works have been submitted to your Committee, and the one most advantageous to the Council is that of Messrs. S. F. Baker & Son. Your Committee recommend:—

'That, subject to an estimate being submitted to the Council by the Finance Committee as required by the statute, the tender of Messrs. S. F. Baker & Son, amounting to 240*l.*, for the three trial shafts, be accepted.'"

The recommendation was agreed to.

The Metropolis Management and Metropolitan Building Acts.—The Parliamentary Committee reported:—

"We have had before us a letter from Mr. Albert Gray, on behalf of the Statute Law Committee, inquiring whether the Council entertains any objections to the repeal of sections 145 to 148 of the Metropolis Management Act, 1855, and whether section 243 is still operative; and also whether the dispute referred to in section 246 as between the hamlet of Penge and the parish of Battersea has since been determined, so as to justify the repeal of the section; and further, whether any objection exists to the repeal of sections 113 and 114 of the Metropolitan Building Act, 1855. Clauses 145 to 148 refer to the determination of the powers of the Metropolitan Commissioners of Sewers, the body which preceded the Metropolitan Board of Works, and we are advised by the Main Drainage Committee that sections 145, 146, and 147 do not now appear to have any operation, but that as section 148, amongst other things, vested the property of the Commissioners in the late Board, it should not be repealed. The Building Act Committee inform us that no objection can be made to the repeal of sections 113 and 114 of the Metropolitan Building Act; and the Local Government Committee, who have communicated with the Vestries of Penge and Battersea, state that those bodies see no objection to the repeal of section 246 of the Act of 1855. Section 243 only saves the rights of the Metropolitan Sewage and Manure Company, and is now inoperative. We recommend—

'That Mr. Gray be informed that the Council sees no objection to the repeal of the sections referred to in his letter, with the exception of section 148 of the Metropolis Management Act, 1855.'"

The recommendation was agreed to, and the other reports of committees having been disposed of, the Council proceeded to consider some of the notices of motion which were on the *agenda*.

Land for Artisans' Dwellings.—Mr. Beachcroft moved

"That it is highly desirable that the provisions of Part III. of the Housing Act, 1890, under which the Council is empowered to acquire land for the purpose of erecting houses or cottages for the working classes, should be extended so as to allow of land when so acquired being leased to companies or persons willing to erect dwellings under and subject to conditions imposed by the Council; that a petition be presented to Parliament accordingly, with a view to such alteration of the law as is required, and that it be referred to the Parliamentary Committee to carry out this resolution."

This was, after some discussion on an amendment moved by Mr. Bassett Hopkins, referred to the Housing of the Working Classes Committee.

Contracts at Low Prices.—On the motion of Mr. E. Jones, it was resolved:—

"That it be referred to the General Purposes Committee to consider and report on the policy of accepting tenders when it is apparent that the contractor can only carry out the work in an honest and substantial manner at a great loss; whether such a policy is contrary to fair and honest trading, and whether it tends to promote sweating, scamping, and the use of inferior materials."

The Council then adjourned.

Correspondence.

To the Editor of THE BUILDER.

MEGALOPOLIS.

SIR,—The sketch of the section of the steps of the supposed elevated scene at the theatre of Megalopolis given in p. 305 of your edition of April 18, which seems to be intended to illustrate Dr. Dörpfeld's criticisms of the "provisional restoration" proposed in the *Journal of Hellenic Studies*, does not correctly represent the facts of the case, but as the excavations are still proceeding, and several points of much interest connected with the question appear to have been brought to light subsequent to my visit to Megalopolis, of which I have as yet received only very imperfect information, I think it will be best to let the discussion rest for a short time. I shall have much pleasure in returning to it when the evidence is more complete.

April 28, 1891. F. C. PENROSE.

LEES OR LEGHS PRIORY GATEWAY AND ITS RUINOUS CONDITION.

SIR,—In your interesting "Note" in the *Builder* for April 11, p. 287, on the Gateway of Esher Palace, you state that it may be compared with the gateways of Layer Marney, Essex, *circa* 1506, and Lees or Leghs, near Felstead, Essex, founded *circa* 1229. Being familiar with Leghs, I would like to draw attention to what, at first sight, might appear an error, and that is the date of the Gateway. It is true, as stated, that Leghs was founded about 1229, but that is the Monastery, not the Gateway; the Gateway itself is of the Perpendicular period, and was probably built between 1458 and 1485.

I am particularly glad of the opportunity of drawing the attention of your readers to this charming piece of Mediæval architecture, which is so little known outside the county. The appearance of the Gateway is bold, warm, and pleasing in the extreme, being built with red bricks, and having stone mouldings and tracery. The Gateway is rectangular in plan, with octagonal towers at each corner having embattled turrets.

The chimneys are of exquisite ornamental moulded brickwork, and characteristic of Essex alone. In the upper part of the gateway were rooms, which were oak wainscoted, but this, alas, has been destroyed and burnt for firewood during the last forty years. The magnitude of the Gateway is considerable, the height of the turrets from the ground-line being 80 ft. The condition of this noble pile as a whole is ruinous in the extreme, especially the beautiful chimneys, which will, I fear, soon become a total ruin, if some helping hands do not shortly come to the rescue. It is a building well worthy of preservation, and ought, and would be in some countries, looked upon as a national monument, rather than as a shell or shelter for cattle, which I am sorry to say is the function it usually performs.

JOHN M. WOOD.

REMARKABLE DISCOVERY IN THE ISLE OF WIGHT.

SIR,—There have just been discovered on the heights of Freshwater, in the Isle of Wight, some curious terra-cotta slabs and broken pottery, which some persons in the locality believe to be the work of the Phœnicians. Whatever may be the result of the critical examination, it is more probable, as Portsmouth was once a Roman naval station, and a splendid Roman residence has been dug out at Brading, that the remains are Roman. In taking some extracts in the British Museum library, however, a short time since, I was surprised to find running through the works of several historians, indications of a tradition to the effect that the Phœnicians, who came to Cornwall for tin, used, for some unexplained reason, to travel along the South Coast as far as Hampshire, where they crossed by a strip of land to the shore of the Isle of Wight, near the Needles. At a spot close by it would seem they must have embarked, and that spot would have been Freshwater. The famous navigators of the ancient world would, however, hardly have come all this way out of their course unless for the purpose of making a short cut to Gaul, where they also had commercial relations. The tradition probably owes its foundation to the strange mistake of some ancient writers in confounding the Scilly Isles and St. Michael's Mount with the Portsea and Hayling Islands and the Isle of Wight. The slabs can scarcely be of a Phœnician funereal character, inasmuch as that highly-civilised people usually buried their dead in sarcophagi in underground catacombs. It is possible that we may hear of something which may clear up the question of those ancient mounds on the lofty slopes of Freshwater, which up to the present have been taken for British.

CLAUD MONTAGU.

ACCOMMODATION FOR WORKMEN.

SIR,—May I as one who is entitled to an opinion from over a quarter of a century's experience,—from boy to foreman, thence to clerk of works (in several parts of England, and in Government service in the colonies and at home)—call the attention of your readers to the lack of accommodation for meals given to the building operative, specially in country places, where he has to walk to and from his work, and is often without a shelter when he reaches it. I would suggest the provision of a fairly wind and water-tight mess-room, and giving a pint of boiling water to each man when he stops at each meal, and on leaving for the day. He can then mix for himself some tea, cocoa, or coffee, and have a wash before meals and before walking home. He has no excuse for entering the roadside inn, and should get more rest during his meal-time. The expense is not great, frequently only putting a kettle on a fire already alight; but the men cannot get hot water without wasting much of the meal-time in fire lighting, often endangering the building. I can speak from the experience of several places, as well as several buildings, that a place to sit in and the water ready is appreciated by men, and I have cause to know it is a practical help to "temperance." To ensure this not being read as a teetotaler's fad I subscribe myself,

NOT A TEETOTALER.

ARCHITECTURAL EDUCATION.

SIR, — On receiving the Royal Institute of British Architects' Journal for March 5, I was surprised to see the memorial to the Council signed by many well-known architects, objecting apparently to the Institute examinations.

In the colonies, where one has to deal with builders of no established reputation, and where labour and materials have to be used with the strictest economy, a systematic training giving a precise knowledge, such as engineers have, would be invaluable; and there is no doubt that the Institute is doing an immense service to the profession by insisting on such a training, superseding the system at present too much in vogue of paying high premiums for the mere acquisition of draughtmanship and office routine, while the essential scientific knowledge has to be picked up at night-schools, and by private and undirected study. The result of the Institute's course of action is a greatly improved position of members of the Institute in the colonies.

Apart from this, without a precise knowledge of construction and good detail, no man can carry out to the best advantage an artistic conception; and no man's artistic qualities are interfered with by a knowledge either, say, of the constituents of cement and the necessary mathematical knowledge of working out strains, or by knowing something definite about the history of architecture. The tendency of the examinations will be not to keep artistic men out of the profession, but to make them capable of utilising their artistic powers to the credit of the Institute, by making them apply themselves to the distasteful details of their profession.

GEO. A. HAMILTON DICKSON, A.R.I.B.A.

Pretoria, April 3.

ARCHITECTURAL ASSOCIATION VISIT.—We are obliged to defer our report of this till next week.

The Student's Column.

VENTILATION AND WARMING.—XVII.

FANS (*continued*).

AXIAL or helical fans, as the names given to them imply, induce an air-current in the direction of or parallel to their axes, and this by the rotation of a screw-like form.

The earliest forms of axial fans were constructed on what is popularly known as the Archimedean screw principle,—that is, a continuous helix. This form, however, produces two currents of inverse and opposing direction: one towards the circumference, which is useful, the other returning towards the axis, which is not only useless, but decreases the efficiency of the fan.

Fans with a continuous helix may therefore be regarded as wrong in principle, and bladed fans alone should be employed for axial as well as centrifugal fans.

With axial fans the experience of the most successful examples appears to show that the best form of the blades is a flat blade inclined to the axis, rather than a curved blade. The curved blades with axial fans seem to intensify the returning or central current and to produce eddies in the air stream which lessen the efficiency of the fan.

To obviate, and, as far as possible, avoid these unfavourable return currents, in some of the largest modern fans a coned centre is adopted as shown in the diagrams of the fans in use at the new Rath-haus, Vienna, figs. 26, 27, and 28, which give the main lines of the elevation, section, and plan, indicating the cone C, and the twelve blades B.

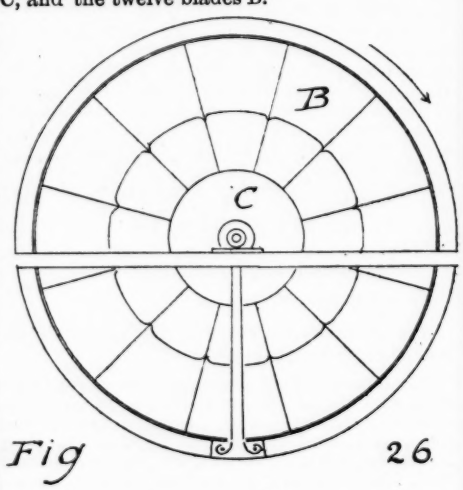


Fig 26

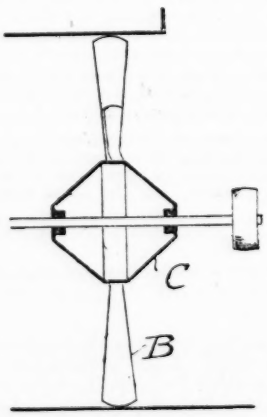


Fig 27

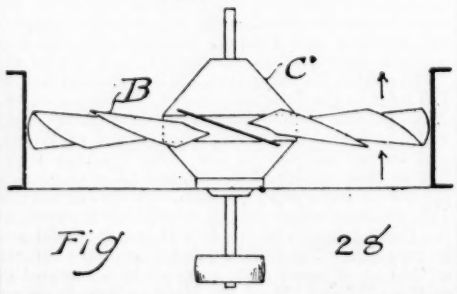


Fig 28

The Blackman Air Propeller, which is well known in this country, is a good example of a well-designed axial fan, and will be found efficient under the circumstances for which it is best adapted, but rapidly loses its value in confined situations, or if required to force air through ducts offering considerable resistance.

As we have already premised, axial fans are best suited for the propulsion (or suction) of large volumes of air at low velocity and low pressure. If we attempt to drive the air at a greater velocity than about 12 ft. per second, or at a higher pressure than one inch of water, we diminish the efficiency of axial fans very materially, while ordinarily a pressure of half an inch of water will give far better results.

The rapidity of revolution of the fan will vary with its size, small fans being with advantage driven at a higher rate than large. In using fans it should, however, always be remembered that increasing the rapidity of revolution always means a large increase of energy expended incommensurate with the increase of volume obtained. To endeavour, therefore, to gain increase of volume by greater rapidity of revolution of a small fan instead of using a larger fan at less speed is an extravagant expenditure of energy, and necessitates the use of motors of much higher horse-power. It may be asked what becomes of the energy thus apparently wasted. By the increase of friction, eddy, and shock, heat is produced. If the fan and its environment were absolutely non-conductive, this would expand the air, and velocity would be obtained. To a limited extent this does occur, but the greater part of the heat is conducted from the air by the metal work of the fan, etc., and hence the loss of energy, which, converted into heat, not only does not assist the air-current, but, reaching the bearings, increases their friction, and so still further diminishes the efficiency of the fan.

In the application of axial fans, it is advisable with the majority to allow a very free access for the air to approach the fan, that is, the duct through which the air is led to the fan should gradually decrease to the size of the fan. With the Blackman fan this point is of vital importance, indeed, this particular fan, to give its utmost efficiency, must have an absolutely free environment of considerable area.

We have now pointed out the leading principles which should govern the design of rotary fans of the usual forms, but the application of these principles to the details of construction demands, if a fan is to be scientifically designed, the employment of mathematical calculations, into which we have, in this column, insufficient space to go fully.

Besides the usual forms of fans which we have considered, numerous more or less fantastic devices have been put forward by various inventors, of which the accompanying diagrams show three examples.

In fig. 29 two three-bladed wheels with cross blades as shown, revolve in opposite directions,

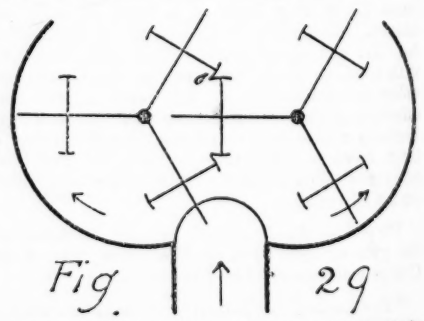


Fig. 29

as shown by the arrows, the cross blades being so arranged as to almost touch in their revolution. The air is thus caught up, as it were, between the blades and the enclosing casing, and so a current is produced.

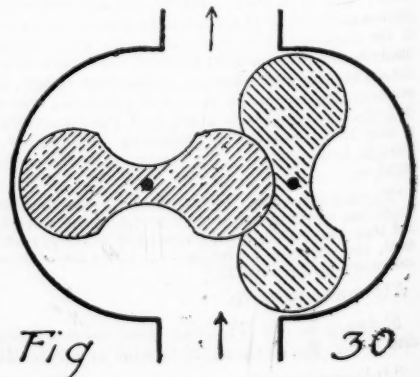


Fig 30

In fig. 30 is a contrivance somewhat similar to the pistonless steam-engine, the operation

being, of course, the converse of that of the engine. In the latter the steam causes the spindles to revolve, whereas in the ventilating apparatus the revolution of the spindles imparts motion to the air.

In fig. 31 is shown a hexagonal drum D, which revolves on its own axis, about the main

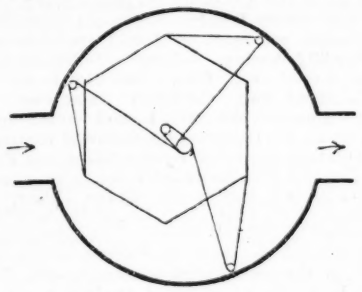


Fig 31

axis of the apparatus, and so moves the clappers C through a path of increasing and decreasing width, thus producing a current of air in the direction of the arrows.

These various forms of apparatus have for their object the avoidance of the adverse currents, to which reference has already been made as so frequently accompanying the action of the more regular forms of fan. The ingenuity, at least, of their designers, as of many other examples merits recognition, though the practical utility of the inventions is hardly commensurate therewith.

OBITUARY.

MR. W. J. HALL.—Mr. W. J. Hall, architect and surveyor, St. Helens, died very suddenly at Prescot on the 24th ult. Deceased, who was sixty-one years of age, and a native of Newcastle-on-Tyne, came to Lancashire in connexion with the extension of the Prescot Workhouse some twenty years ago, and ultimately commenced business in St. Helens.

GENERAL BUILDING NEWS.

NEW FREE CHURCH, EDINBURGH.—In 1860 a lady named Barclay, residing in Edinburgh, bequeathed a sum of 10,000*l.* to the Free Church to be employed in the erection of "a church worthy of the cause" in that city. An excellent site was secured at the north-west angle of Bruntsfield Links, and architects were invited to send in designs. Those submitted by Mr. F. T. Pilkington were preferred and carried out. A new hall is to be built in connexion with this church at a cost of 4,000*l.* It will have an elevation towards Bruntsfield Links and be capable of accommodating 375 persons. The architects are Messrs. Sydney Mitchell & Wilson, Edinburgh.

NEW R. C. SCHOOLS, SHREWSBURY.—The foundation stone of a new Roman Catholic school was laid at Shrewsbury, on the 14th ult., by the Duke of Norfolk. The new building will adjoin the present school near the Roman Catholic Cathedral. The cost will be about 2,500*l.*, and the accommodation is for 450 children. The plans have been prepared by Mr. E. Kirby, Liverpool, and the contractor is Mr. E. Whittingham, Newport, Salop.

VICARAGE, ST. BARNABAS', WARRINGTON.—The Ecclesiastical Commissioners have approved of plans which have recently been submitted to them for the erection of a vicarage for the parish of St. Barnabas, Warrington. Messrs. Pierpoint and Fraser, of Warrington, are the architects for the structure, which will be erected on a site on the north side of the church, at a cost of about 1,500*l.*

RESTORATION OF LINKINHORNE CHURCH.—The parish church of Linkinhorne, Cornwall, was re-opened on the 14th ult. Built in the fifteenth and sixteenth centuries, on the site of a Norman church, it had suffered from neglect and bad treatment, chiefly in the last century, and was in a deplorable condition when the restoration which has just been completed was begun about a year ago. Drawings and specifications were prepared by the architects, Messrs. Hine & Odgers, for taking down and rebuilding the south arcade, for the restoration of the old roofs of nave and aisles, and for a new roof of oak to the chancel, the old one having been found to be rotten; for the removal of the deal seats and gallery, and the opening up of the tower arch; for providing oak stalls in the chancel and oak seats in the nave; and for removing all internal plaster from the walls, and dressing and pointing the masonry throughout. These and other works have now been carried out. The font,—the most ancient feature of the church,—now stands in the centre of the cross formed by the north and south porches, the tower, and the nave. Only two of the original carved benches of the fifteenth century remain, and are in a very decayed condition. New oak benches have been substituted for deal pews. The passages of the nave and aisles have been paved with the old memorial stones, laid as nearly as possible in their original positions, and new slabs of Delabole slate. The chancel is paved with tiles. A three-light window by Mr. Fouracre has been placed in the north aisle in memory of a parishioner. The window was erected by Messrs. E. and John Kittow. During the restoration of Linkinhorne Church there was discovered a fresco on the wall of the south aisle. On the removal of the plaster at the south-east end of the same aisle there was brought to light an arched and cusped piscina. In repairing the walls of another portion of the church a fragment of a large Norman capital was discovered. The contractor for the restoration was Mr. Isaac Rosekilly, of Gunnislake; the clerk of works, Mr. J. Rowse; Mr. Hems, of Exeter, made the carved stall ends; all the new glazing and the decoration of the nave roof timbers have been executed by Messrs. Fouracre & Son, Stonehouse, Plymouth; the new five-light east window of the chancel, a plain reredos below, and the east gable coping and cross, all of Polyphant stone, were made from the working drawings of the architects, by Mr. Nicolls, of Lewannick.

ST. MATTHEW'S CHURCH, BOLTON.—On the 12th ult. the new vestry of St. Matthew's Church, Bolton, erected by the vicar's warden (Mr. Thomas Holmes), of Hayward Leigh, was formally opened by the donor. The vestry and parish room is octagonal in form, measuring 21 ft. 6 in. across the centre of the room. Its height is 12 ft. 6 in. from the floor to the eaves, and is covered with an open-timber pitch-pine roof rising to 18 ft., and surmounted by an ornamental ventilated turret. The architects were Messrs. Stead & Morris, of Bolton.

NEW WESLEYAN SCHOOL, LEEDS.—On the 18th ult. the memorial-stones of a Sunday school in connexion with the Dewsbury-road Chapel, Leeds, were laid. The new building is being erected on land adjoining the chapel, from the designs and under the superintendence of Mr. George F. Danby, architect, Leeds. It comprises a school or assembly room, 65 ft. by 34 ft., with recessed platform at one end, lighted by clearstory windows at the sides over the class-rooms, and large windows at each end. This room has an open timbered roof, 25 ft. high in the centre, and is capable of seating 500 persons. Separate entrances for the boys and girls are provided, with tiled lobbies and glazed screens. On the sides of the assembly-room are eight class-rooms, also a ladies' sewing-room. An infants' room is provided, 25 ft. by 17 ft., with raised gallery; in the basement three additional class-rooms, also kitchen, apparatus-room, and all other conveniences are arranged. In consequence of the fall of the ground, the ceilings of these rooms will be 7 ft. above the land outside. Each room is ventilated by fresh air being admitted by expanding tubes and drawn out by air-flues conducted into an exhaust ventilator; and the heating, in addition to open fireplaces in some of the rooms, will be on the low-pressure system. The building is being built of pressed bricks, with Harehill's stone dressings. It is in the Classic style. The whole of the internal woodwork is of varnished pitch-pine. The cost of the building will be about 2,400*l.*

PROPOSED ALTERATIONS ON THE CASTLE, INVERNESS.—Plans have just been prepared for additions and alterations which it is proposed to carry out on the Castle, Inverness. The plans, which have been prepared by Messrs. Ross & MacBean, provide for the erection of a building on the vacant space of ground between the County Buildings and the Jail, in which rooms for the Sheriff, the Procurators, and other officials will be provided, and the enlargement of the Governor's house and other alterations. The improvements are estimated to cost 1,500*l.*, and new cells are to be provided at the porter's lodge at a cost of 300*l.*

CONSECRATION OF A NEW CHURCH AT MELINCRYDDAN.—On the 23rd ult., the Church of St. Catherine, which has been erected at Melincryddan, was consecrated by the Bishop of Llandaff. The architects of the church were Mr. D. M. Davies (of Neath) and Mr. Carter, of the firm of Seddon & Carter. The site was given by Mr. Edward Evans, of Eaglesbush. The church is of modern architecture, and affords accommodation for 500 persons. The cost was about 3,000*l.*

PROPOSED NEW ASYLUM FOR LINCOLNSHIRE.—The question of the increase of lunacy in Lincolnshire, and the provision of more accommodation for patients, has occupied the attention of the managers of the Lincoln County Asylum for a long period. A considerable number of patients are now boarded out in Yorkshire. The Lunacy Commissioners have visited the institution, and report that either a new annexe must be built or a new asylum in the southern part of the county. They favour the latter scheme. A committee of the managers, specially appointed for the purpose, report in favour of the erection of a new asylum in the south of the county at an approximate cost of 72,000*l.*, to accommodate 400 patients. The addition of a new annexe would, it is estimated, cost 63,000*l.*; but better and cheaper water could be procured elsewhere. It is also said that the old institution requires an expenditure of 12,000*l.* to place it in a satisfactory condition.—*Leeds Mercury.*

PROPOSED EXTENSION OF THE BIRMINGHAM SCHOOL OF ART.—The Museum and School of Art Committee of the Birmingham City Council, recently approved the sketch plans of Messrs. Martin & Chamberlain for the extension of the School of Art on the Cornwall-street frontage, and instructed the architects to prepare detail drawings for submission to the City Council, with a view to the work being speedily commenced. The sketch plans just approved provide for a block of buildings of two floors and a basement—the elevation of the existing buildings is three floors and a basement. The new block will contain on the ground floor an examination-room 65 ft. by 27 ft., a light-and-shade-room 52 ft. 6 in. by 27 ft., all pointing to Cornwall-street, and behind an elementary-room 45 ft. by 27 ft., and rooms for the head-master and the assistant-masters. The present light-and-shade-room and the lecture-room, measuring respectively 39 ft. by 27 ft. and 27 ft. by 25 ft., will be thrown into one and used as a lecture-room, and the head-master's-room will be converted into a library. On the upper floor to the Cornwall-street front there will be an architecture and building construction-room, and a cartoon and fresco-room corresponding in area to those on the first floor, and in the rear will be a room for painting or antique classes 45 ft. by 27 ft., a ladies' common room 24 ft. by 18 ft., and a studio for the head-master. The present head-master's studio will be converted into a room for the Chairman of the School of Art Committee. The plans for the basement provide for extensive redistribution of space. The present architecture and building construction room, promoted to a higher floor, will be thrown into the machine-drawing room, and the enlarged room—64 ft. by 27 ft.—will be used as the modelling room, and the present modelling department will become the machine-drawing department. In the new building accommodation will be found for the modelling and casting department in a room 65 ft. by 27 ft., two art laboratories, one 38 ft. by 27 ft. and the other 32 ft. by 27 ft., and improved arrangements for the servants and stores. The estimated cost of the new buildings is about 13,000*l.*

A NEW WELSH WATERING-PLACE.—On the 25th ult., Mr. W. Gregson, of Bolton and Southport, Chairman of the Ynyslas Estate Company, laid the foundation-stone of that new watering-place on the west Welsh coast. A contract has already been let to Messrs. Farnsworth, of Manchester, for the erection of a number of semi-detached villas, and a system of sewerage has been completed. The Ynyslas estate, which has been acquired by a Lancashire Company, comprises over 1,100 acres, 260 of which have been laid out for building purposes. A considerable portion adjoins Cardigan Bay and the estuary of the river Dovey.

NEW BATHS AT NEWTON HEATH.—The new Corporation Baths which have been erected at Newton Heath, Lancashire, were formally opened on the 22nd ult. by the Mayor of Manchester (Alderman J. Mark). The frontage of the baths is 189 ft. in length towards Wellocks-street, from which a central entrance gives access to the first-class department on the right and the second-class on the left. The latter contains a swimming-bath 75 ft. in length and 24 ft. in width, surrounded by a gallery for spectators, and twelve slipper baths. The first-class swimming-bath is 45 ft. by 24 ft. There are six first-class slipper baths for men, and three first-class and three second-class for women. The residence for the superintendent is in the central block, and in the rear are the laundry, drying-stove, store-room, boiler-house, and other rooms. The total cost of the undertaking was 6,557*l.* The designs for the buildings were selected in competition, and were by Mr. Lawrence Booth; and the works have been carried out under the supervision of Messrs. Booth and Chadwick, architects, of Manchester. Messrs. W. Southern & Sons, of Salford, were the contractors for the building; and Messrs. Elliott, Olney, & Co., of Manchester, for the engineering.

CHURCH OF ST. DAVID'S, BEAUFORT, BRECONSHIRE.—The Church of St. David's Beaufort, has just been opened by the Bishop of Llandaff. The church accommodates 253 adults, and is built of native stone, with Ebbw Vale terra-cotta dressings. There is an open timber roof, boarded and felted under the slating. The style adopted by the architects, Messrs. Halliday and Anderson, of Cardiff, is a simple treatment of the Decorated period. The contract cost of the church was 975*l.* During the progress of the works several additions have been made to the church, including a stone pulpit, and a font. The three-light east window is filled with stained glass, in memory of the late Vicar Morgan. Mr. Taylor, of London, carried out the architect's designs for the windows. The contractor was Mr. John Haines, of Cardiff.

PRESBYTERIAN CHURCH, SUNDERLAND.—The foundation-stone of the John Black Memorial Church, which is to be erected in North Bridge-street, Sunderland, was laid on the 23rd ult. by Mr. James Westoll. The new church will be built on the site of the old North Bridge-street Church, and will be designed in the early Gothic style, with nave divided from side aisles by arcading, and with large choir and organ chamber to the south. There will be two entrances from the main street,—one from the tower, and the other by a special porch, with cloak-room opening off. A stone spire will be erected at the south-west corner, with a height of

140 ft. The building will be of stone. The contractor is Mr. Robert Allison, of Whitburn, and the architect is Mr. William Lister Newcombe, of Newcastle. The outlay will be 8,000*l.*

NEW SCHOOLS, HEANOR.—On the 25th ult. the foundation-stone of a new boys' school, to be erected in Mundy-street, Heanor, Derbyshire, was laid by Miss Corfield. The site covers an area of 363 square yards, and is in almost the centre of the town. Mr. J. Holbrook, of Heanor, is the architect, and Mr. G. Oldershaw is contractor.

SANITARY AND ENGINEERING NEWS.

THE LONDON WATER QUESTION.—The Select Committee of the House of Commons, presided over by Sir Matthew White Ridley, sat for the first time on Tuesday to consider the London Water Bills. It had been decided at a preliminary meeting to consider first the London Water Commission Bill, proposed by the Corporation of London. Having heard the statements of counsel, the Committee, without any evidence being called, refused to pass the preamble of the Bill, on the ground that the water question could not be satisfactorily dealt with by a public authority merely having powers to promote Bills in Parliament. We gave some particulars as to the provisions of this Bill in the *Builder* for April 4 last, p. 266.

WATER SCHEME FOR COLWYN BAY.—Application having been made to the Local Government Board to issue a Provisional Order forming the Urban Sanitary Districts of Conway, and Colwyn Bay and Colwyn, and the Rural Sanitary District of Conway Union, into a united district for the purposes of securing a common water supply for such united district, Mr. Samuel Joseph Smith, C.E., one of the Inspectors of the Local Government Board, attended at the Town-hall, Conway, recently, to hold an inquiry into the subject. The chairman of the Joint Water Committee (the Rev. W. Venables Williams) explained that, not having to lay their pipes in any other union, no Act of Parliament would be required. The lake from which the water was intended to be drawn was 250 acres in extent, and the water was declared by Mr. Campbell Browne, after analysis, to be pure and soft. Mr. T. B. Farrington, the engineer of the new scheme, explained the nature of the works. The population to be supplied he estimated at 20,000, though he had provided for supplying 40,000. The gathering ground of the lake extended over 1,100 acres. The height above the sea level was 1,164 ft. As showing the adequacy of the supply, Mr. Farrington stated that during the recent dry weather 300,000 gallons of water ran over the outlet of the lake per day. The course of the pipes would be from the end of the lake, through Doecarrog, Talybout, Tynyeroes, to Conway. There it would be necessary to cross the river, and he had two schemes for effecting that, (*a*) to carry the pipes along the present suspension bridge, or (*b*) to suspend the pipes between the suspension bridge and the tubular bridge with steel cables, 7 ft. apart, and braced together. After crossing the river, the new main would join the existing main at Sarn Mynach on the main road to Colwyn Bay. He estimated the cost of the works at 16,200*l.* It having been pointed out that in the event of a purchase of the lake, the proprietors would require 1,500,000 gallons per day for a turbine, Mr. Farrington said that there would still be sufficient to supply a population of 40,000 people with twenty gallons per head per day for six months, without any water going into the lake at all.—There was no opposition to the scheme, and the inspector declared the inquiry closed.

EMBANKMENT WORKS AT SOUTHPORT. — The Scarisbrick trustees have just commenced an undertaking for enclosing the alluvial land on the shore of the Ribble estuary by means of a large embankment, which will extend from Hundred End to Crossens, a distance of about three miles. The area to be enclosed is about 1,000 acres, and the estimated cost is between 20,000*l.* and 30,000*l.*

TEIGNMOUTH WATER SUPPLY.—The Local Board of Teignmouth has decided to carry out a comprehensive scheme of water-supply for the wants of the town. In the summer months some difficulty is experienced in providing an ample supply to the inhabitants and visitors, and the existing works, from which the supply is at present derived, are incapable of yielding an increased volume. Mr. H. Bertram Nichols, C.E., of Birmingham, has been called in to prepare a scheme and to report.

LANDING-PIER AT MUTTON COVE, DEVONPORT.—The landing-pier at Mutton Cove, Devonport, which has been in course of construction for several years past, has just been completed. The pier has been constructed from the designs of Mr. J. C. Inglis, C.E., the engineer, by Mr. A. R. Debnam, of Plymouth. A considerable amount of dredging was necessary before the foundations could be laid, and a large portion of the material to be excavated consisted of cross-grained rock. The pier juts out from the quay wall at the bottom of James-street, its sea-arm and the approach roadway forming a broad T. It consists of concrete in blocks and in site, and is so constructed as to allow steamers to come alongside at any state of the tide. The sea-arm is 75 ft. by 20 ft., its outer edge being 50 ft. from the quay wall, and the approach road has a width of 14 ft. The sea front is furnished with a flight of granite steps, and similar steps are provided in the two bays formed by the juncture of the sea-arm with the approach road. The faces of the pier have a batter of 1 in 12 for the purpose of giving greater solidity to the structure and greater resistance to the strong currents which run at this part of Hamoaze. The surface of the sea-arm is paved with granite sets, and is protected by stanchions and galvanised iron chains. At each end are cast-iron bollards for mooring purposes. The pier will be lighted by one of Sugg's 26-candle-power lamps, and a caretaker's office and waiting-rooms are about to be erected on the site of the old fishermen's hut immediately adjoining. The building of the pier has afforded an opportunity of effecting an improvement in regard to the drainage of the district. Rock concrete tubes have been carried through the pier, and, the top of the discharge tube being 3 ft. below low-water spring tides, the nuisance hitherto arising from a continual lodgment of sewage at certain states of the tide has been avoided. This portion of the undertaking has been carried out by workmen in the Borough Surveyor's department under the supervision of Mr. Burns and Mr. T. Dennis, foremen of works.

STAINED GLASS AND DECORATION.

NEW WINDOWS, ST. NINIAN'S EPISCOPAL CHURCH, GLASGOW.—Two new windows were recently unveiled in the apse of this church, completing the group of three above the altar. The centre window contains the representation of the Crucifixion in the one light and of the angels and the women at the empty sepulchre in the other. The first of the two new windows, which have also two lights each, is placed to the left of the centre, and has for its subjects the Nativity and the Epiphany. The pictures occupy almost the whole space of the window, and are placed under canopy or tabernacle work, and rest upon architectural bases. The other window, on the right of the centre, represents the Ascension of Our Lord and Pentecost. Messrs. Heaton, Butler, & Bayne, of London, designed and executed the windows.

MEMORIAL WINDOW, TANFIELD CHURCH.—There has recently been dedicated a stained-glass window in Tanfield Parish Church, Durham, to the memory of the late Mr. Robert Clark. Mr. C. E. Kempe, of London, was entrusted by the committee with the work. The window is a two-light one, and shows figures of SS. James and Andrew, with scenes below showing the calling of the sons of Zebedee, and the call of S. Andrew, with canopies and tracery.

MEMORIAL WINDOW, KIRKCALDY.—A stained-glass window has just been erected over the font in St. Peter's Church, Kirkcaldy, to the memory of the late Dean. The subject is the Good Shepherd. The window is from the studio of Messrs. Wailes & Strang, Newcastle-on-Tyne.

STAINED-GLASS WINDOWS, SILVERDALE CHURCH.—The eight clerestory windows,—four on the north side and four on the south,—in Silverdale Parish Church have been filled with stained glass, all the subjects, with one exception, being taken from the Bible. The work has been done by the firm of Messrs. Shrigley & Hunt, of Lancaster.

THE CHURCH OF ST. ANNE'S-ON-THE-SEA has just been provided with a stained-glass window, from the studio of Messrs. Burlison and Grylls, of London. The window, which illustrates the "Children of the Bible," is placed in the north transept of the edifice.

FOREIGN AND COLONIAL.

FRANCE.—The Municipal Council of Dunkerque on the 24th ult. decided to build a new Mairie on the north-east side of the Place de la République, at an estimated cost (including site) of 1,800,000 fr. (about 72,000*l.*). Four other sites were proposed, but they were all deemed to be too costly, the schemes in connexion with them ranging in estimate from 2,150,000 fr. to 2,550,000 fr. One proposal was to build on the east side of the Place Jean Bart,—the finest and largest *place* in the town,—but the cost of this project was estimated at 2,375,000 fr. (about 95,000*l.*), and it was not thought that the financial resources of the town would permit of such a large expenditure. The Place de la République is a smaller and more irregular-shaped *place* than the Place Jean Bart. The committee on whose report the Municipality have acted suggest that plans could be obtained in competition, but hints that as two of the local architects (names not mentioned) are distinguished pupils of the Ecole des Beaux-Arts, it would not be necessary to look elsewhere for an architect. We extract these particulars from the *Phare de Dunkerque* of April 26.——It is announced that the French exhibition at Moscow will probably open on May 7.——The palace of the University at Rennes has been robbed. The thieves have carried off a number of medals and pictures of great value, especially some remarkable pictures of the Flemish school.——The Museum at Compiègne has acquired a fine picture by M. Edmond Yon, "The Old Oak at Cernay," presented by the Baron Alphonse de Rothschild. ——The President of the Republic has presented to the museum at Versailles his medallion portrait by M. Chaplain.——M. Duplessis, curator of engravings at the Bibliothèque Nationale, has been elected member of the Académie des Beaux Arts in place of the late Albert Lenoir.——The art exhibition at Dunkerque will open on June 1, and close on September 30 following.——Some evil-disposed persons have carried off from the Hôtel de Ville of Limoges two Gobelin's tapestries which were among the oldest and finest in the provinces; one representing Narcissus looking into the fountain, the other Apollo killing the Python ——The new Faculté de Médecine to be created at Marseilles will occupy the Pharo Palace. The expenses of the adaptation, &c., of the building are estimated at 350,000 francs.——A committee has been formed to erect at Carcassonne a monument to the poet André Chénier.——On May 24 there is to be inaugurated at Dax a statue to the memory of Borda, the mathematician.—— The town of Grenoble proposes to erect a monumental statue to a poet of the eighteenth century, Gentil-Bernard.——M. Falguière, the sculptor, has completed the model of the monument which is to be inaugurated next year, at Chambéry, to commemorate the annexation of Savoy to France. The monument will be surmounted by a figure of a female in Savoyard costume, pressing to her heart the French Standard.——The parish church of Estrelles, in the Arrondissement of Vitré, one of the finest churches in the country, very recently restored, has been completely destroyed by fire.

BERLIN.—The Emperor and Empress both visited the exhibition buildings in the Landes-Ausstellungspark on the 27th ult., and made a preliminary inspection of those groups of the International Art Exhibition in which the hanging committees had completed their work. The extensive Spanish group set an example as regards punctuality, the finishing touches having been done last week.—The new Moltke Bridge, a monumental five-span stone bridge over the river Spree, was opened on the 28th ult., having been finished in great haste for the purpose of letting the funeral cortége of the late Field-Marshal pass over it. The architectural features and sculptural ornaments were draped in black for the occasion, and the gas candelabra were kept burning during the day.

STUTTGART.—The competition for a model for the proposed monument to the deceased Emperor William I. has been decided, the winner being the Berlin sculptor, Neckelmann. The number of candidates was 26. The cost of the monument is not to exceed 8,000*l.*

MISCELLANEOUS.

ENGINEERS' AND BUILDERS' EXHIBITION AT ISLINGTON. — Under the high-sounding title of "International Exhibition of Machinery, Manufactures, Appliances, and Inventions incidental to Engineers, Electricians, Builders, and Ironmongers," the ground-floor area of the Agricultural Hall at Islington has been about half-filled this week with a miscellaneous exhibition which has been very far from including any display at all commensurate with its name. The exhibition opened on Thursday, the 23rd ult., too late for notice by us last week, and will close this Saturday, May 2, so that it is not necessary to speak of its contents at any length. Gas-engines were better represented than any other item, and besides Crossley's "Otto," Andrew's "Stockport," and other well-known engines, we noticed a newcomer in the shape of the "Campbell" gas-engine, which appears to be a very good type of engine. It is exhibited by the Campbell Gas-Engine Co., Halifax. The Blackman Ventilating Co. exhibit the "Blackman" fan. In heating apparatus, Mr. W. G. Cannon, of London-road, Southwark, exhibited his excellent "radiators"; and Messrs. Rosser & Russell, of Charing-cross exhibited a very complete collection of radiators and other heating apparatus, and a good hydraulic dinner-lift. Messrs. D. Hulett & Co. made a good show of gas-fittings, &c. Messrs. F. Jones & Co. exhibited "silicate cotton" or "slag-wool," in its various applications to fire-proofing and sound-proofing. Messrs. Lewis & Lewis exhibited two or three small machines for joiners' use, and the "Brixton" gear friction hoist. The Reversible Window Company, of Hart-street, Bloomsbury, exhibited their admirable appliances. There were several other exhibits more or less pertaining to the building trades, but none of novelty or of special note, if we except Mr. Dan Rylands's glass-lined metal-piping for water-service pipes, electric lighting mains, &c.; Edison's "Mimeograph," a very ingenious apparatus for reproducing writings, plans, or sketches; the "Homacoustic" speaking-tube, which embodies some desirable improvements; and some very ingenious folding trucks (one of them suitable for a small jobbing builder's use), exhibited by the Patent Folding Truck and Carriage Company, Swansea.

NEWCASTLE AND GATESHEAD BUILDERS' ASSOCIATION.—On the 23rd ult., says the *Newcastle Journal*, at one of the largest meetings of contractors and master builders held in Newcastle for many years, it was unanimously decided to form an association, to be styled the Newcastle and Gateshead Builders' Association, and the following officers were elected: —President, Mr. W. C. Tyrie; vice-president, Mr. John Ferguson; treasurer, Mr. Brims; secretary, Mr. James Forsyth. The following committee was also appointed: Messrs. Walter Scott, Haswell, Nevison, Lowry, and Pringle.

NATIONAL REGISTRATION OF PLUMBERS. — The third session of the plumbers' class in the Technical College, Bath-street, Glasgow, terminated last week. The District Council for Glasgow and the West of Scotland attended, — the vice-president of the Council, Mr. John Gordon, architect, being in the chair. Addresses were delivered to the students by the chairman, Dr. Eben. Duncan, Mr. David Thomson, architect (the convener of the Technical Education Committee of the Council), Professor Jamieson, Mr. W. P. Buchan, and Mr. A. M. Scott, the secretary of the Council. The prizes will be presented at the beginning of next session. The competitive essay is on the best method of carrying out the drainage of a suburban villa.——The quarterly court of the Worshipful Company of Plumbers was held on Saturday afternoon last at the Guildhall. The Master (Mr. W. H. Bishop) presided. The first business was the admission of Dr. Farquharson, M.P., to the freedom of the company.—Sir Algernon Borthwick then, in the name of the Court, welcomed their youngest member. This honour, he said, fell to him as one of the junior members of the Court, and it was a very agreeable task to have to welcome Dr. Farquharson to so excellent an institution. As a member of the Select Committee on the Metropolitan Water Bills he should make it a point to see whether a clause could not be introduced carrying out generally the excellent regulation of the New River Company, upon whose work none but registered plumbers were engaged. The work of the guild was not only of great importance to the community, but would be to the advantage of the workman, whose greater efficiency would secure for him better wages.—Dr. Farquharson thanked the Court for the honour they had done him, and, through him, the town of Aberdeen and his constituency.—The Clerk (Mr. Coles) read a list of thirty-seven public and registration meetings which had been held since the last Court between the extreme limits of Penzance and Aberdeen; and the Warden and Mr. Smeaton having reported upon the London and provincial examinations, the business of the Court was concluded.

POPULAR SCIENCE LECTURES.—At the Royal Victoria Hall, Waterloo Bridge-road, S.E., during May, the lectures will be as follows:—Tuesday, May 5, Dr. W. D. Halliburton, on "Skin and Bones"; Tuesday, May 12, Mr. F. H. Blandford, on "Silk and Silkworms"; Tuesday, May 19, Rev. J. Freeston, on "Galileo"; Tuesday, May 26, Mr. W. North, on "The Physiology of a Dinner."

NEW CEMETERY, PAISLEY. — The new public cemetery at Hawkhead, Paisley, was recently opened. The site of the new cemetery has a gradual slope rising to an eminence of about 50 ft. from the main road at Hawkhead. The cemetery is in the east end of the town, on the outskirts of the burgh. In the new burial-ground, which comprises 40 acres, 17 acres have only meantime been laid off, containing about 17,000 lairs. The entire cost of the undertaking, which has been carried out under the supervision of Mr. Sharp, master of works, will be about 20,000*l.*

COMPENSATION FOR DAMAGE BY BRINE-PUMPING.—A Select Committee of the House of Commons have arrived at an important decision affecting the salt industries of Cheshire and Worcestershire, and the owners of buildings in that district. In the salt districts brine-pumping has for many years past been practised for the getting of salt, with the result that extensive and ever-increasing subsidences of land have taken place throughout the neighbourhood of the pumping operations. Roadways are split up, pools have been formed where there should be solid, level ground, houses and other buildings have sunk to many feet below the natural surface, and been thrown out of the perpendicular in a grotesque and dangerous manner, being frequently only saved from collapse by extemporised supports. For all the damage and loss thus occasioned, owners of the property have had no remedy, for as the pumping goes on all over the district, and subsidences sometimes occur some miles away from a pumping-shaft, it is impossible to fix the responsibility upon any one pumper. The grievance has been increasingly felt during the last few years, and, with a view to finding some relief, Mr. Brunner, M.P. for Northwich—where, with Winsford, most of the subsidences have taken place—introduced a Bill this Session "to provide compensation for owners of property suffering through the subsidence of the ground caused by the pumping of brine," and this Bill Mr. J. Gathorne Hardy's Committee have this week passed. The Bill provides that ("as no effectual remedy by action or otherwise existed for the damage and loss thus caused"), on the application of property owners having an aggregate rateability of 2,000*l.*, a compensation district should be declared, the limits of such district to be fixed by the Local Government Board. A district being thus formed, a Compensation Board should be constituted who should be empowered to establish a compensation fund by levying a rate not exceeding 3d. per 1,000 gals. of brine pumped in a year upon the pumpers, from which fund sufferers from the process within the district should be compensated.

LECTERN, TOTNES.—The execution of the new lectern (oak) for Brooking Church, Totnes, has been entrusted to Messrs. Rashleigh, Pinwell & Co., of Plymouth, and is to be carried out from the design of Mr. Edmund Sedding, who has now joined the firm.

UNIVERSITY COLLEGE LECTURES.—On Monday last Professor Bendall, M.A., gave the first of a short series on the Mediæval Archæology of the East, his special subject being the monuments of Buddhism in India. He stated that the Vedic Aryans lived in villages cleared from the jungle, and built of wood. He then discussed the word *pur*, the termination of so many Indian names of places, giving it as his opinion that it must be rendered "fortress," and not "city," else some of the passages in the Rig Veda would be absurd. Fergusson states that the Indians did not build in stone till after the Greek invasion. They could certainly work in iron, as the gates of Delhi show. We are not to infer a low state of civilisation because of the wooden buildings of the ancient Hindus, any more than we should conclude that from the beautiful wooden churches of old Norway. In the lower parts of India, near the rivers and the sea, the houses were of wood, but in the higher places they were almost always built of brick or mud. The lecturer then spoke of the *topes*, an Anglo-Indian corruption of the Sanskrit *stupa*, a word for the Buddhist buildings intended for the preservation of relics, and he said that in relic-worship Buddhism (so far from us in many things) and Christianity touch each other. He instanced the tope at Sanchi, whose dome is 160 ft. high, while the diameter is 140 ft. Above the dome is the *liti*, meant to represent one of the Buddhist heavens, in which the chief gods of the system, the *devas*, are to be seen offering flowers, &c. Professor Bendall thinks the gate of the tope at Sanchi cannot be later than 100 A.D., and said that the same liberty which had been taken in the stone and wood of our cathedrals by the decorators had been taken in this building, as in addition to scenes in Buddha's life there are representations of men drinking, &c. The next lecture will refer to the pillars and cave temples of India.

LIVERPOOL ENGINEERING SOCIETY.—The eleventh ordinary meeting of this Society for the present session was held at the Royal Institution, Colquitt-street, on the 22nd ult., Mr. F. Hudleston, Assoc.-M. Inst. C.E., President, occupying the chair. After the usual routine business, Mr. George Farren, Assoc.-M. Inst. C.E., read a paper entitled "Denudations at Aber-Menai, Anglesey." The paper dealt with the question of the washing away, by the sea, of a large body of sandhills which previously formed a natural breakwater across the entrance of the Menai Straits, near Carnarvon, and with the engineering details of the various schemes which had been adopted by the Carnarvon Harbour Trustees for the preservation of this natural breakwater. Mr. Farren illustrated his paper with a large number of diagrams and lantern views. The discussion upon the paper was adjourned to the next meeting.

THE PUBLIC HEALTH (LONDON) LAW CONSOLIDATION AND AMENDMENT BILLS.—We are obliged again to hold over, for want of space, the suggestions made by the London County Council as to these Bills.

CAPITAL AND LABOUR.

STRIKE AT THE IMPERIAL INSTITUTE WORKS.—We are informed that the bricklayers at the above struck work without notice at eight o'clock on Wednesday, the 22nd ult., against one of their number, whom the others were trying to force to join their society, and as the contractors,—Messrs. Mowlem & Co.,—declined to accede to their demand that this man should be discharged, the men refused to continue their work, and were paid off accordingly. The man against whom the action was taken continued at work with two or three others during the day, but, on leaving in the evening, he was knocked down, and would, there is no doubt, have been very badly maltreated had it not been for the intervention of police and others. He has not since returned to his work. On the following day (so we are informed) two delegates from the Operative Bricklayers' Society waited on the firm, and expressed their regret that the men should have taken the law into their own hands in such a way, stating that it was entirely against the Society's rules that they should strike against a non-unionist, and hoped that the men would be allowed to resume their work. On Monday morning last the works were accordingly opened again, but the bricklayers refused to go to work unless all those who had struck were reinstated as a body. As the whole of the number were not required, this could not be done, and the men, therefore, are still out on strike.

THE THREATENED STRIKE OF CARPENTERS IN LONDON.—According to the *Daily Chronicle* of Thursday, the Secretary of the London United Trade Committee of Carpenters and joiners affirms that it is possible that they may be able to avert a strike, as they are to have an interview with the employers before the end of the week.

THE WARRINGTON MASTER BUILDERS AND THEIR MEN.—At a meeting of the master builders of Warrington and the operative bricklayers, held at the Masonic Chambers, Sankey-street, on the 23rd ult., the matter as to an advance of wages and alterations of working rules, of which six months' notice had been given by the men, was amicably and satisfactorily arranged, the advance of ½d. per hour being conceded and the working hours during the winter months reduced, so that time is only paid for which the men can really work, as under the present working rules a considerable number of hours are paid for on outdoor work which the men cannot possibly see to do. The alterations will date from May 18.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

7,406.—MOULDING AND PRESSING TILES: *W. West.*—The principal object of this invention is to enable cleaner corners and surfaces to be left on the moulded articles. The invention also facilitates the dies parting from the moulded material; this is done by providing the cutting dies with "sleeves" controlled by springs which slide one against the other.

7,707.—FLUSHING WASH-BASINS, &C.: *D. Bostel.*—The nozzle is branched so as to curve in a double horn around the basin, and the pipe is perforated so as to flush out all parts of the basin or pan.

8,512.—STAIR-TREADS: *R. Leslie.*—The stair-treads, which are the subject of this patent, consist of grooved pieces of wood into which are inserted pieces of India-rubber, either round or square.

13,438.—SQUARES: *C. L. Bronk.*—This invention relates to carpenters' steel squares, and the object of the improvement is to construct the joint between the two arms so that the strain upon the pivotal joint may be materially reduced, and the wear of the arms and throwing them out of true measurement prevented. This is effected by providing the movable arm with a recess and guide, so that the square may not be strained, but be exact.

2,865.—PAVING AND ROOFING COMPOSITION: *H. T. Williams.*—According to this patent, asphalt is so treated that the bitumen therefrom is obtained in a pure or nearly pure state; then an emollient is mixed with the product,—such, for instance, as india-rubber,—so that it can be spread into sheets for roofing purposes or remelted and treated or mixed with earthy material to form pavements. Lard or lard-oil is used to enable the compounds to amalgamate.

3,147.—SEWER-PIPES: *J. G. Meyer.*—It is claimed that by this invention an improved coupling is used, the union having a sleeve with internal grooves or slots; studs enter these, and effectually connect the sewer-pipes and the discharge-pipes.

NEW APPLICATIONS FOR PATENTS.

April 13.—6,257, W. Gibson, Kilns for Glazed and Enamelled Clay Goods.—6,274, J. Lee, Door or Window Fastener.

April 14.—6,371.—W. Thompson, Stoves.—6,395, F. Jones, Joint for Soil-pipes, &c.—6,411, H. Baumotte, Chisels, &c.

April 15.—6,419, F. Hall and E. Bruce, Ventilators.—6,429, J. Hartley, Cold Sawing Machines. — 6,548, R. Wilson, Blue and Green Pigments.—6,467, W. Munns, Screw-driver.

April 16.—6,512, R. Richards, Stoves and Fireplaces.—6,513, J. Thomson, Ventilation, &c.—6,522, A. Robertson and J. Yule, Chimney Cowl.—6,524, W. Pilkington, Kilns for Annealing Plate-glass.—6,545, J. Peyton and O. Rhodes, Ventilator.—6,549, S. Emery, Flushing Drains.—6,559, J. Nicol, Electric Bell-push.—6,565, E. Armitage and others, Painting Machines.

April 17.—6,610, G. Haywood, Ventilators.—6,616, H. & J. Thomas, Fittings for hanging Door Curtains or Screens,—6,630, J. Griffiths, Street Pavements, &c.—6,632, A. Boutcher, Socket or Collar for Stoneware Drain-pipes, &c. — 6,647, J. Stott, Window Sash Fasteners, &c.

April 18.—6,683, R. White, White Lead.—6,705, A. Smallwood and H. Fenney, Marbling or Decorating certain Surfaces.

PROVISIONAL SPECIFICATIONS ACCEPTED.

2,591, J. Steen, Construction of Metal Screws for Woodwork, &c. — 2,614, A. Howell, Window Sash Fasteners.—3,966, A. Filcher and H. Loosemore, Ventilators and Ventilating Cowls.—4,300, T. Tyers and O. Barnsdale, Plumber's Joints, and in Apparatus therefor.—4,336, H. Bishop & Son, Construction of Streets, Roads, &c.—4,522, C. Huelser, Brick-Presses —5,068, F. Quéry, Kilns for use in the manufacture of Pottery, &c.—5,069, A. Smith, Ornamentation of Wood.—5,195, A. Page and G. Way, Prevention of down-draughts of Smoke in Chimneys.—5,203, W. Hughes, Easy Opening and Closing of Windows.—5,331, G. Goldsmith, Fixed and Movable Chimney Cowls.—5 363, D. Nicoll, Construction of Slabs for Road-making.—5,365, R. Jesson and others, Brick-moulds.—5,424, J. Pulham, Construction of Fireproof Staircases, &c.—5,483, H. Nemitz, Mural and other Decorations.—5,772, C. Huelser, Clay-presses for making Tiles, &c.—5.787, C. Edwards, Drain-pipes, &c.—5,810, T. Hydes, Hydraulic Cement, &c.—6,039, R. Scholefield, Moulding and Pressing Bricks, &c. 6,041, J. Craven, Kilns for Drying and Burning Bricks, &c.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

6,089, J. Eckersley and others, Discharge-valve Apparatus for Water-closets, &c.—7,215, D. Allport, Foundation for Light Buildings, &c. — 9,441, H. Schlund, Hinges.—4,765, F. Simonson, Machinery for Handling Logs in Saw-mills.

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised	Premium.	Designs to be delivered.
*Laying out Large Building Estate, North Wales	Jno. Corbett, Esq. M.P.	100*l.* 30*l.* 20*l.*	May 29

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Drainage, &c., of Cemetery, Gildersome, Yorks	Burial Board	*Official*	May 5
Annular Condenser, Gasworks	Cleckheaton Loc. Bd.	do.	ao.
*Sewerage and Road Works	Leicester Corporation	do.	do
Eight Houses	Wallsend Co-op. Soc.	.....	do.
Road Metal (2,200 tons)	Woburn Highway Bd.	Henry Platt	do.
Warehouse, Ormeau Avenue, Belfast	Alex. Gribbon	Young & Mackenzie	do.
Work at Hospital	Widnes Loc. Bd.	J. S. Sinclair	do.
Alteration and Extension to School, Goodman-street	Burton-on-Trent Sch. Bd.	R. Churchill	do.
Steel Rails, Fishplates, Springs, &c.	India Office	*Official*	do.
Limestone Road Metal	Merthyr Tydvil L. B.	do.	do
Three-arch Stone Bridge over River Taff, at Quaker's-yard	do.	do.	do.
Six houses, Witton Gilbert, Durham	Wm. Logan	J. W. Bounthwaite	do.
Hospital, Wallsend	Wallsend, Willington Quay, and Howdon Joint Hosp. Com.	Wm. Hope	May 6
Widening and Improving Iron Bridge at Mearclough	Sowerby Bridge L. B.	F. Rothera	do.
Iron Packbridge	Biggleswade Highway Bd.	David Mackenzie	do.
Cast-iron Socket Pipes, &c.	Sunderland Gas Co.	*Official*	do.
Alterations and Additions to Cattle Market, Roath	Cardiff Corporation	W. Harpur	do.
Residence, Stables, Coach-house, &c. Penarth	.....	Jacobs & Pickwell	do.
*Broken Granite and Pitchings	Bethnal Green Vestry	F. W. Barratt	May 7
Flint Road-metal (1,450 tons)	Horsham Local Board	*Official*	do.
Alterations to premises	Frost & Reed	Bernard & Drake	do.
Covering Plymouth Leat with concrete	Corporation	Geo. D. Bellamy	May 8
*Supply of Macadam Spalls	Brighton Twn. Council	F. J. C. May	do.
*Painting, &c. Works at Schools, Upton Park	St. George in the East Guardians	*Official*	do
Stands and Fittings, Lambton Park, Chester-le-Street	Durham County Agricultural Society	do.	May 9
Paving Streets	Willington Quay L. Bd.	do.	do.
Storage Reservoir	Baildon Local Board	B. Walker	May 11
Whinston-road, Metal	Hebburn Local Board	Geo. H. Humble	do.
Alterations and Additions to Infirmary, Stamford	Governors	*Official*	do.
Petty Sessional Court, Cefncoedcymmer, Brecon	Standing Joint Com.	do.	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Sundry Repairs and Whitewashing	Central London Sick Asylum Board	*Official*	May 11
*Pulling-down Old Building and Erecting New Dining Hall, &c.	Romford Union	F. Whitmore	do.
Church, Sutton, St. Helen's	.....	Paley, Austin, & Paley	do.
Pipe Sewers, Manholes, &c.	Hereford Town Coun.	J. Parker	do.
Sanitary Pipes (1,000 yards)	Rawmarsh (Rotherham) Local Board	J. W. Bellamy	May 12
Sewerage Works in the Town	Tredegar Local Board	W. C. Widdowson	do.
*Portable Steam Crane	Fulham Vestry	J. P. Norrington	May 13
Bridge, Passfield, Bramshott	Petersfield High. Bd.	H. T. Keates	do.
*Printing Works and Publishing Offices, &c. "Sheffield Independent"	Proprietors	Flockton & Gibbs	do.
*New Station, &c. at Custom House and Buckhurst-hill	G. E. R. Co.	*Official*	do.
*New School Buildings at Bruton	Sexey's Trade School Governors	G. J. Skipper	May 15
Public Buildings	Bodmin Public Rooms Co. Lim.	Ralling & Tonar	May 16
*New School	Swindon School Board	W. Drew	do.
Re-building Harford Bridge, Petertavy	Devon County Council	E. H. Harbottle	May 18
Two Shelters at Recreation Ground, and Cabmen's Shelter	Guildford U.S.A.	Henry Peak	do.
*Precipitation Tanks (Main Drainage Scheme)	Manchester Corp.	J. Allison	May 19
*New Workhouse Buildings	Hastings Union	P. H. Tree	May 21
New National Schools, Otley, Leeds	.....	Fairbank & Wall / Alfred Marshall	No date
Dwelling-house, Hanover-square, Leeds	Geo. Hutton	.....	do
House, Highfield-street, Beeston-hill, Leeds	.....	C. H. Thornton	do.
School, Boundary Wall, &c. Cathays, Cardiff	Rev. C. J. Thompson	E. M. Bruce-Vaughan	do.
School, Bagley, near Thirsk	Rev. F. P. Gallwey	W. Lewis & Son	do.
Cottages, North Featherstone	Mrs. Chas. Addingley	do.	do.
Brewery, Offices, House, &c. Newport, Mon.	Wm. Yorath & Sons	C. Johnson & Sons	do.
Additions to Archbishop Abbott's School, Guildford	Trustees	Wm. G. Lower	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary	Applications to be in
*Clerk of Works	East Barnet Valley Local Board	3*l.*	May 8
*Surveyor and Sanitary Inspector	Denton & Haughton Local Board	150*l.*	May 9
*Surveyor, Inspector of Nuisances, &c.	Ware Local Board	125*l.* &c.	May 19

Those marked with an Asterisk (*) are advertised in this Number. *Competition, p. iv. Contracts, pp. iv, and vi. Public Appointments, p. xx.*

MEETINGS.

SATURDAY, MAY 2.

Association of Public Sanitary Inspectors.—Dr. B. W. Richardson, President, on "National Main Drainage." 6 p.m.

Junior Engineering Society.—Visit to Tower Bridge Works. 3 30 p.m.

Royal Institution.—Professor Silvanus P. Thompson on "The Dynamo." IV. 3 p.m.

MONDAY, MAY 4.

Royal Institute of British Architects.—Annual General Meeting. 8 p.m.

Society of Arts (Cantor Lectures).—Mr. Hugh Stannus on "The Decorative Treatment of Natural Foliage." IV. 8 p.m.

Royal Institution.—General Monthly Meeting. 5 p.m.

Victoria Institute.—Papers by Mr. Charlesworth and Mr. J. Allen Brown. 8 p.m.

Society of Engineers. — Mr. C. C. Carpenter on "Modern Coal Gas Manufacture." 7.30 p.m.

Liverpool Architectural Society. — Annual General Meeting. 7 p.m.

TUESDAY, MAY 5.

Institution of Civil Engineers.—Mr. William Langdon on "Railway-train Lighting." 8 p.m.

Art Union of London (Adelphi Theatre).—General meeting for the Distribution of Prizes. 11.30 a.m.

Society of Biblical Archæology.—8 p.m.

Glasgow Architectural Association. — Mr. W. J. Anderson on "The Architect and Painter, Baldassare Peruzzi, of Siena: His Work and Times." 8 p.m.

WEDNESDAY, MAY 6.

The Guild and School of Handicraft.—Professor Herkomer, R.A., on "A Technical Talk" 8 p.m.

Society of Arts.—Mr. E. L. Fleming on "The Sources and Applications of Borax." 8 p.m.

Liverpool Engineering Society. — Annual General Meeting. (1) Election of Council and Officers for ensuing Session. (2) Adjourned Discussion on Mr. George Farren's paper on "Denudations at Aber-Menai, Anglesey." 8 p.m.

THURSDAY, MAY 7.

Society for the Encouragement of the Fine Arts.—Mr. R. A. Sterndale on Cyclopean Architecture in Polynesia. 8 p.m.

Institution of Electrical Engineers.—(1) Dr. J. A. Fleming on "Some Effects of Alternating Current Flow in Conductors having Capacity and Self-Induction." (2) Mr. W. H. Preece, F.R.S., on "Some Points connected with mains for Electric Lighting." 8 p.m.

Royal Archæological Institute. — (1) Mr. E. Green, F.S.A., on "Bath as a Roman City." (2) Mr. Walter Lovell on "Queen Eleanor's Crosses." 4 p.m.

FRIDAY, MAY 8.

Institution of Civil Engineers (Students' Meeting).—Mr. J. Walter Brown on "Malta Dockyard Caisson." 7.30 p.m.

Royal Institution.—Professor W. Ramsay on "Liquids and Gases." 9 p.m.

Auctioneers' Institute. — Ordinary General Meeting. 3 p.m.

SATURDAY, MAY 9.

Edinburgh Architectural Association. — Visit to Newhall House, Penicuik House, Ravensneuk Castle and Brunstane Castle.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

APRIL 20.—By *Wells & Read:* F.g.r. of 12*l.* 12s., with reversion in 95 yrs., Harrow, 300*l.*

APRIL 21.—By *Bean, Burnett, & Co.:* 31, Tite-st., Chelsea, f., 2,560*l.*; 6 and 8, Ponsonby-pl., Vauxhall, u.t. 35 yrs., g r. 12*l.*, r. 92*l.*, 785*l.*; 10, Roehampton-st., u.t. 37 yrs., g.r. 8*l.*, r. 50*l.*, 445*l.*; 46, Lillington-st., u.t. 34 yrs., g.r. 5*l.* 13s. 6d., r. 46*l.*, 420*l.*—By *Towers, Ellis, & Co:* Nos. 123 and 125, Finchley-rd., u.t. 70 yrs., g.r. 50*l.*, r. 153*l.*, 1,225*l.*—By *Newbon & Co.:* 14, 16, and 20, Copenhagen-st., Islington, f., r. 12*l.*, 1,210*l.*; "Fairview" and "Fairlawn," Bounds Green-rd., u.t. 89 yrs., g.r. 14*l.* 14s., r. 52*l.*, 450*l.*; 4 to 9, Lyme-grove, Hackney, u.t. 54 yrs., g.r. 24*l.*, r. 119*l.* 12s., 480*l.*; 12, Douglas-rd., Canonbury, u.t. 55 yrs., no g.r., 700*l.*; 29, Osnaburgh-st., Euston-rd., u.t. 31 yrs., g.r. 18*l.*, r. 50*l.*, 220*l.*; 211, 215, and 217, Blackstock-rd., Highbury, f., r. 71*l.*, 1,065*l.*—By *Perkins & Cæsar:* 18, Matilda-st., Barnsbury, u.t. 50 yrs., g.r. 2*l.*, 210*l.*; 22, 23, 70, and 71, Princes-rd., Bermondsey, u.t. 32 yrs., g.r. 13*l.* 10s., r. 98*l.* 16s., 705*l.*; 22 to 32 (even), Parke's-buildings, u.t. 28 yrs., g.r. 12*l.*, r. 123*l.* 10s., 565*l.*; "The Princess Alexandra" beer-house, Neptune-st., Rotherhithe, u.t. 19 yrs., g.r. 1*l.* 10s., r. 32*l.*, 205*l.*; 285 and 287, Tooley-st., Southwark, f., r. 60*l.*, 1,195*l.*; 4 to 10, Stevens-st., Bermondsey, f., r. 165*l.* 2s., 1,075*l.*; 9, 10, and 11, Princes-st., f., r. 78*l.*, 915*l.*

APRIL 22.—By *C. C. Taylor & Son:* Hailey Cottages, Great Amwell, Herts, f., r. 35*l.* 10s., 360*l.*; 60, Pearson-st., and 47, Appleby-st., Kingsland, u.t. 11 yrs., g.r. 6*l.* 14s., r. 62*l.*, 140*l.*; 57, Pearson-st., u.t. 13 yrs., g.r. 12*l.*, r. 80*l.*, 520*l.*; 56 to 74 (even), Fellows-st., u.t. 23 yrs., g.r. 35*l.*, r. 306*l.*, 1,350*l.*; f.g.r. of 8*l.* 10s., Strode-rd., Fulham, with reversion in 88 yrs., 160*l.*; f.g.r. of 62*l.* 10s., with reversion in 88 yrs., Munster-rd., 1,160*l.*—By *D. Young:* "Canfield Villa," Brodrick-rd., Wandsworth Common, f., r. 40*l.*, 580*l.*; "Kenton Villa," f., r. 40*l.*, 550*l.*; 28 and 40, Garfield-rd., u.t. 82 yrs., g.r. 14*l.* 10s., r. 75*l.*, 820*l.*; 18, Freke-rd., u.t. 80 yrs., g.r. 5*l.*, r. 26*l.*, 250*l.*; "Holly Lodge," Holland-rd., Clapham, u.t. 8 yrs., g.r. 7*l.* 7s., 100*l.*; 5, Holland-st., Brixton, u.t. 8 yrs., g.r. 4*l.* 13s. 4d., r. 32*l.*, 60*l.*; 39, Holland-st., u.t. 7 yrs., g r. 10*l.* 10s., r. 24*l.*, 40*l.*—By *A. Cole & Co.:* 7, Town End Villas, Edmonton, f., r. 19*l.*, 305*l.*; 3, St. James's-rd., u.t. 973 yrs., g.r. 1s., r. 19*l.*, 200*l.*; copyhold house, Sun-st., Waltham Abbey, r. 14*l.*, 165*l.*

APRIL 23.—By *J. Bussey:* 114, Grundy-st., Poplar, f., 500*l.*—By *C. C. & T. Moore:* 10 to 20 (even), Grafton-rd. South, Plaistow, f., r. 137*l.* 16s., 1,270*l.*; 22 to 34 (even), Grafton-rd. South, f., r., 152*l.* 2s., 1,380*l.*; 31, 32, & 33, Cordova-rd.. Bethnal Green, u.t. 58yrs., g.r. 10*l.* 17s. 6d., r. 81*l.* 18s., 535*l.*; 16, 18, & 20, Hewlett-rd., Old Ford, u.t. 75 yrs., g.r. 12*l.*, r. 109*l.* 4s., 825*l.*; 46, Wellington-rd., Bow-rd., u.t. 73 yrs., g.r. 3*l.*, r. 28*l.* 12s., 220*l.*—By *Newbon & Co.:* 61 & 63, Mildmay-park, Stoke Newington, f., r. 100*l.*, 1,540*l.*; 9, Duncan-rd., and 1 to 8, Hayes Cottages, Hackney, f., r. 204*l.*, 1,760*l.*; 1 to 4, Gay's Buildings, F. Site, 600*l.*; By *E. Stimson:* 44, Benhill-rd., Camberwell, f., 1,050*l.*; No. 206, Kennington Park-rd., and 4, Stannary-st., f., 900*l.*; 51, Abbeville-rd., Clapham, u.t. 89 yrs., g.r. 7*l.*, r. 38*l.*, 350*l.*; 4, 6, 8, 12 to 20 (even), Caldervale-rd. u.t. 89 yrs., g.r. 56*l.*, 2,800*l.*; 29 to 35 (odd), Hartland-rd., West Ham, u.t. 88 yrs., g.r. 5*l.*, 430*l.*; 1, Billingsgate-st., 10 to 16 (even), York-st., and 1 to 8, Sexton's-pl., Greenwich, f., r. 185*l.* 18s., 610*l.*—By *E. Evans:* 13 and 15, Pembridge-villas, Wandsworth, u.t. 77 yrs., g.r. 16*l.* 16s., 255*l.*—By *Farebrother, Ellis, & Co.:* 8, Berkeley-pl., Wimbledon, u.t. 87 yrs., g.r. 8*l.*, r. 65*l.*, 750*l.*

APRIL 24—By *F. J. Bisley:* 21 and 23, Adams-gardens, Rotherhithe, f., r. 26*l.*, 160*l.*; 29, Alexandra-rd., Hornsey, u.t. 86 yrs., g.r. 7*l.* 10s., r. 34*l.*, 300*l.*—By *Fuller, Horsey, Sons, & Cassell:* 28, St. Lawrence-rd., Brixton, u.t. 72 yrs., g.r. 6*l.* 6s., r. 30*l.*, 250*l.*; 69, Church-rd., Battersea, u.t. 70 yrs., g.r. 3*l.* 12s., r. 29*l.* 18s., 235*l.*; 4, Ashurst-st., u.t. 73 yrs., g.r. 5*l.*, r. 32*l.* 14s., 205*l.*; 6 and 8, Ashurst-st., u.t. 73 yrs., g.r. 20*l.*, r. 64*l.* 16s., 360*l.*

[*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	6/10/0 7/15/0
Teak, E.I.	load	8/10/0 14/0/0
Sequoia, U.S.	ft.cu.	2/3 3/0
Ash, Canada	load	2/10/0 4/5/0
Birch, do.		2/5/0 4/5/0
Elm, do.		3/10/0 4/15/0
Fir, Dantsic, &c.		2/0/0 3/15/0
Oak, do.		2/10/0 4/10/0
Canada		4/17/6 6/10/0
Pine, Canada red		2/10/0 3/10/0
Do, yellow		2/0/0 5/10/0
Lath, D'ntsic, fath		5/0/0 6/0/0
St. Petersburg		5/0/0 7/0/0
Deals, Finland, 2nd & 1st std	100	7/0/0 10/0/0
Do, 4th & 3rd		7/0/0 8/0/0
Do. Riga		6/0/0 7/10/0
St. Petersburg, 1st yellow		9/10/0 14/0/0
Do. 2nd yellow		8/0/0 9/0/0
Do. white		6/10/0 10/0/0
Swedish		6/10/0 15/0/0
White Sea		8/0/0 16/10/0
Canada, Pine 1st		13/0/0 24/0/0
Do. do. 2nd		9/0/0 15/10/0
Do. do. 3rd, &c.		6/10/0 10/0/0
Do. Spruce. 1st		8/10/0 10/10/0
Do. do. 3rd & 2nd		6/0/0 7/10/0
New Brunswick		5/0/0 7/0/0
Battens, all kinds		3/10/0 15/10/0
Flooring Boards, sq., 1 in. prep. 1st		0/10/0 0/14/0
Do. 2nd		0/9/0 0/10/6
Other qualities		0/5/0 0/7/6
Cedar, Cuba	ft.	/4 /4½
Honduras, &c.		/4 /4½
Mahogany, Cuba.		/4½ /6½
St. Domingo, cargo av		/4½ /6½
Mexican do. do		/4½ /5½
Tobasco do. do		/5½ /7
Honduras do.		/5½ /6½
Box, Turkey	ton	4/0/0 13/0/0
Rose, Rio		10/0/0 20/0/0
Bahia		9/0/0 18/0/0

TIMBER (*continued*).		
Satin, St. Domingo	ft.	0/0/10 0/1/3
Porto Rico		0/0/10 0/1/6
Walnut, Italian		0/0/3½ 0/0/7
METALS.		
IRON—Bar, Welsh, in London	ton	6/5/0 6/15/0
Do. do. at works in Wales		5/15/0 6/5/0
Do. Staffordshire, in London		6/5/0 7/0/0
COPPER—British, cake and ingot		56/0/0 57/0/0
Best selected		59/0/0 60/0/0
Sheets, strong		66/0/0 0/0/0
Chili, bars		52/10/0 0/0/0
YELLOW METAL	lb.	0/0/6 0/0/6½
LEAD—Pig, Spanish	ton	12/10/0 0/0/0
English, com. brands		12/12/6 0/0/0
Sheet, English, 3 lbs. per sq. ft. and upwards		14/5/0 0/0/0
Pipe		14/15/0 0/0/0
ZINC—English sheet	ton	26/5/0 0/0/0
Vieille Montagne		26/15/0 0/0/0
TIN—Straits		90/10/0 0/0/0
Australian		90/15/0 0/0/0
English Ingots		94/10/0 0/0/0
OILS.		
Linseed	ton	22/7/6 22/15/0
Cocoanut, Cochin		35/10/0 0/0/0
Do. Ceylon		28/10/0 0/0/0
Palm, Lagos		25/10/0 0/0/0
Rapeseed, English pale		30/0/0 31/10/0
Do. brown		30/0/0 0/0/0
Cottonseed ref.		22/10/0 0/0/0
Oleine		21/15/0 24/0/0
Lubricating, U.S.	gl.	0/0/0 7/0/0
Do. refined		7/10/0 12/0/0
TAR—Stockholm	barrel	1/1/6 1/2/0
Archangel		0/13/6 0/0/0

TENDERS.

[Communications for insertion under this heading must reach us *not later than* 12 *noon on Thursdays.*]

BEDFORD.—For erecting a house in Rothesay-road, for Mr. Samuel Green. Mr. F. T. Mercer, architect, Bedford:—

Webster & Cannon	£1,640
French & Ellwood	1,480
J. P. White	1,437
Melcombe Bros.	1,360
Geo. Harrison	£1,347 0
C. E. Fathers	1,299 10
T. H. Coleman	1,288 0

BOSTON (Lincolnshire).—Accepted for the erection of a villa residence. Mr. James Rowell, architect, Boston:—

Bricklayer's, Mason's, Carpenter's, Joiner's, and Plasterer's Work.

Johnson Taylor, Boston £425 0 0

Painter's, Plumber's, Glazier's, Gas-fitter's, and Bricklayer's Work.

E. J. Kime, Boston (accepted) £58 0 0

BOURNEMOUTH.—For work in connexion with the Boscombe Arcade, Bournemouth, for Messrs. Phillips & Beckett. Messrs. Dawson & Donkin, architects and surveyors, Bournemouth. Quantities supplied :—

Wrought ironwork and columns.

Yates, Haywood, & Co., Limited	£560 0 0
Atlas Engine Company	550 10 0
Edward Howell	491 12 9
G. F. Darby & Co.	385 1 0
Brownlie & Murray, Glasgow *	376 8 0

* Accepted, less cast-iron columns.

For forty cast-iron columns only.

Steven Bros. & Co.	£122 10 0
W. Macfarlane & Co., Glasgow (accepted)	92 0 0

Bath and Portland stone work.

J. Alsford, Boscombe, Bournemouth (accepted) .. £2,050 0 0

Scagliola columns, panels, &c., to internal bays.

Bellman & Ivey, London (accepted) £838 16 0

BRIXHAM (Devon).—For the erection of a villa residence for Mr. T. Lakeman, jun. Mr. George Soudon Bridgman, architect, Paignton :—

W. A. Goss	£1,655 0	E. P. Bovey	£1,475
M. Bridgman	1,587 10	Rabbich & Brown	1,470
Hazlewood Bros.	1,558 0	R. Yeo, Torquay*	1,375
H. Webber	1,495 0	* Accepted.	

BROCKENHURST (Hants).—For alterations, &c., at the Morant Arms Hotel. Messrs. W. H. Mitchell, Son, & Gutteridge, architects :—

T. Rashley	£165 0 0
H. Stevens & Co., Southampton (accepted)	153 0 0

BURSLEM.—For alterations and repairs to the "Bleak Hill" earthenware manufactory, for the Executors of the late Edward Moore. Mr. Edwin Penn, architect, Stoke-upon-Trent :—

William Grant, Burslem (accepted)	£535 0 0

CARSHALTON.—For the erection of billiard-room, stables, &c., at Blythwood, Carshalton, for Mr. T. Cooks. Messrs. Newman & Jacques, architects :—

Kelland	£1,488 0	Howe & White	£1,168 17
Hollingsworth	1,233 0	Humphries	1,119 0
B. E. Nightingale	1,176 0	Balchen & Shopland	922 0

COMPTON (near Stockbridge).—For the erection of entrance-lodge and gates, gardener's cottage, and pair of labourers' cottages, for Mr. John Spiller. Messrs. W. H. Mitchell, Son, & Gutteridge, architects, Southampton :—

G. Wheeler, jun.	£1,761	T. J. Jukes	£1,497
H. Stevens & Co.	1,530	F. Beale, Andover*	1,460
		* Accepted.	

DEVONPORT. — For alterations to the turncock's residence, Rowden's Reservoir, for the Devonport Water Company. Mr. H. Francis, Engineer, Waterwork's Office, Devonport :—

T. Harvey	£139 0 0	W. J. Allin, Stone-house*	£107 10 0
G. H. Smith, jun.	132 15 0		
S. Perkins	128 14 6	* Accepted.	

EALING.—For rebuilding first portion of the "Feathers" Hotel, for Messrs. Stephens Bros. Messrs. G. H. Pargeter & Co., architects, 3, Broad-street Buildings, E.C. Quantities supplied :—

Thomas Nye, Ealing (accepted)	£4,372 0 0

EAST BARNET.—For alterations and additions to the "Prince of Wales," East Barnet. Mr. Fred. A. Ashton, architect, Stratford, E :—

W. Shurmur	£891	Hearle & Farrow	£739
J. & H. Cocks	786	Coulsell Bros.	668
C. Watts	780	J. Linzell	663
North Bros.	753	F. Voller (accepted)	648

EDMONTON.—For the construction of roads and sewers on the first portion of the Town-road Estate, Edmonton, for the London and Suburban Land and Building Co. Messrs. Hammack & Lambert, Norgrove-buildings, 59, Bishopsgate-street :—

Wood	£2,214 8 10	Nicholls	£1,485 0 0
Bloomfield	1,719 0 0		

HARLESDEN.—For completing for occupation four houses in Glynfield-road, Fortune-gate, for the Globe Land and House Property Trust, Limited. Mr. Thomas Spink, surveyor, 26, Charing-cross, S.W. :—

H. B. Oldrey	£840 0 0	H. Collins	£570 0 0
H. Eady	725 16 0	Wheeler & Co	498 15 0
Scott & Phillips	650 0 0	Robert Watts, Harlesden*	480 0 0
Tappin	645 0 0		
E. Parker	588 0 0	* Amended tender, accepted.	

KENT.—Accepted for repairs to main roads for 1891-92, for the Bridges and Roads Committee of the Kent County Council, Mr. F. W. Ruck, County Surveyor :—

Section 1.—Dartford.
The Kent Road Co., Gravesend £1,958 10 0

Section 2.—Dartford.
The Kent Road Co., Gravesend £2,077 0 0

Section 3.—Rochester.
Tuff & Miskin, Rochester £2,870 18 10

Section 4.—Rochester.
The Kent Road Co., Gravesend £479 0 0

Section 5.—Hoo.
Tuff and Miskin, Rochester £1,546 10 5

Section 6.—Bromley.
The Kent Road Co., Gravesend £2,547 5 0

Section 7.—Bromley.
Peill & Sons, Bromley £1,149 15 0

Section 8.—Sevenoaks.
The Kent Road Co., Gravesend £1,173 0 0

Section 9.—Sevenoaks.
E. B. Chittenden, Offham £1,521 5 0

Section 10.—Wrotham.
E. B. Chittenden, Offham £1,197 12 6

Section 11.—Malling.
The Kent Road Co., Gravesend £348 10 0

Section 12.—Malling.
E. B. Chittenden, Offham £1,924 16 3

Section 13.—Malling.
E. B. Chittenden, Offham £1,610 15 0

Section 14.—Malling.
The Kent Road Co., Gravesend £596 19 6

Section 15.—Tonbridge.
F. Playfoot, Edenbridge £845 0 0

Section 16.—Tonbridge.
The Kent Road Co., Gravesend £2,795 11 3

Section 17.—Tonbridge.
W. & G. Arnold, Frant £1,686 6 8

Section 18.—Tonbridge.
Arnold & Lambert, Frant £2,600 1 0

Section 19.—Maidstone.
The Kent Road Co., Gravesend £1,065 10 0

Section 20.—Maidstone.
W. Lambert, Horsmonden £809 12 9

KENT (continued) :—

Section 21.—Maidstone.
J. Ellis & Co., Maidstone £1,344 10 0

Section 22.—Maidstone.
The Kent Road Co., Gravesend £1,748 0 0

Section 23.—Cranbrook.
W. Lambert, Horsmonden £1,578 16 3

Section 24.—Cranbrook.
The Kent Road Co., Gravesend £1,850 13 4

Section 25.—Cranbrook.
The Kent Road Co., Gravesend £1,486 18 0

Section 26.—Hollingbourne.
R. L. Knight, Sittingbourne £1,091 10 0

Section 27.—Hollingbourne.
N. Marley, Detling £1,032 8 11

Section 28.—Hollingbourne.
The Kent Road Co., Gravesend £2,058 7 6

Section 29.—Hollingbourne.
N. Marley, Detling £777 4 4

Section 30.—East Ashford.
R. L. Knight, Sittingbourne £1,245 13 4

Section 31.—East Ashford.
R. L. Knight, Sittingbourne £694 11 9

Section 32.—East Ashford.
R. L. Knight, Sittingbourne £830 0 5

Section 33.—Blean.
R. L. Knight, Sittingbourne £683 10 0

Section 34.—Blean.
T. Ashenden, Canterbury £813 10 8

Total amount of accepted tenders .. £47,939 13 8
County Surveyor's estimate 46,309 7 11

LEYTONSTONE.—For erecting three houses in Grove-green-lane, Leytonstone, E., for Mr. H. S. Smith. Mr. Fred. A. Ashton, architect, Stratford, E. :—

J. Mansell	£940	G. Helbing	£690
Hearle & Farrow	891	H. Whitty	670
D. Sayer	875	J. & F. Bane (accepted)	652

LLANFIHANGEL-RHYDITHON (co. Radnor).—For the restoration of the parish church. Mr. Stephen W. Williams, architect, Rhayader, Radnorshire. Quantities by the architect :—

A. Meredith	£385 0	Price & Deakins	£335
J. D. Williams	363 0	Henry Price, Builth*	330
E. Davies & Son	339 10	* Accepted.	

LONDON. — For alterations, &c., to the "Alexandra Palace" Hotel, Wood Green, N. Mr. Waterfield, architect. Quantities supplied :—

	Walnut.	Pitch Pine.	Yellow Deal.
Holloway Bros.	£1,461 0 0	£1,254	£1,229
Mower & Son	1,447 0 0	1,247	1,129
Johnson	1,442 0 0	1,238	1,200
Veers	1,399 9 6	1,364	1,334
Yardley & Sons	1,338 0 0	1,115	1,050
J. O. Richardson	1,328 0 0	1,020	969
Voller	1,307 0 0	1,040	954

LONDON.—For sanitary works to No. 1, Upper Hamilton-terrace, N.W. Mr. Thomas Durrans, architect, 44, Upper Baker-street, N.W. :—

T. H. Durrans & Sons	£298 10	H. C. Clifton	£288 0
G. Head & Co.	295 0	J. Myring & Co.*	275 0
		* Accepted.	

LONDON.—For alterations and additions to the "Carlton" public-house, Kentish Town, N.W., for Mr. G. Branson. Mr. E. E. Niblett, architect, 11, Union Chambers, Wormwood-street, E.C. (Contract No. 2) :—

Gould & Brand	£1,181	Burman & Son	£935
Conway	955	Ransom*	908
Todd	950	* Accepted.	

LONDON.—For alterations and additions to the "Grosvenor" Hotel, Canonbury, for Mr. Horace J. Moore. Mr. E. E. Niblett, architect, 11, Union Chambers, Wormwood-street :—

Walker Bros.	£429	Burman & Son	£378
Evans	390	Todd (accepted)	364

LONDON.—For erecting St. Augustine's Mission Buildings, Lillie-road, Fulham. Messrs. J. E. K. & J. P. Cutts, architects, 28, Southampton-street, Strand, W.C. :—

Chamberlen Bros.	£2,499	J. Piller & Sons	£2,269
Holloway Bros.	2,337	J. Tyerman	2,200
A. Porter	2,300	B. E. Nightingale (accepted)	2,187

LONDON.—For paving work, &c., in Church-street, Fulham, for the London County Council. Mr. A. R. Binnie, Engineer :—

John Mowlem & Co.	£3,200 0 0	Nowell & Robson	£2,953 0 0
William Stubbs	3,088 7 8		

LONDON.—For drainage, &c., at the workhouse, Marloes-road, for the Guardians of St. Mary Abbotts, Kensington. Mr. Thos. W. Aldwinckle, architect, 2, East India-avenue, Leadenhall-street, E.C. Quantities supplied :—

Flew & Co.	£6,975	J. G. B. Marshall	£6,100
Kirk & Randall	6,922	J. Peattie	5,980
Leslie & Co.	6,451	W. Johnson & Co.	5,500
J. Holland	6,350	H. Toten & Sons (accepted)	5,350

LONDON.—For heating the lunatic wards of Poplar Union Workhouse and other work. Messrs. Clarkson, surveyors, 146, High-street, Poplar :—

Young & Martin	£215 0 0	McCormick & Sons	£159 0
Land	198 0 0	Graveley	149 12
Fraser & Fraser	198 0 0	Holland	139 0
Clement, Jeakes & Co.	172 12 6	J. & F. May	137 0
Thompson & Son	170 5 0	Crane	130 0
Dawson & Co., Lim.	164 0 0	Jeffreys	129 0
Blundells, Lim.	160 8 6	J. Fraser & Son	122 5

LONDON.—For alterations on and additions to St. Michael's Mission Hall, Rackham-street, W. Mr. Dunn Carmichael, architect :—

Messrs. L. W. & S. Ransom, Kensal-road (accepted)	£457 0 0
[No competition.]	

LONDON.—For pulling down and rebuilding No. 7, Fenchurch-street, E.C., for Mr. C. J. Knowles. Mr. E. B. Ellis, architect :—

Woodward & Co.	£12,500	Rolls	£12,222
Hall, Beddall, & Co.	12,448	B. E. Nightingale	11,883
Perry & Co.	12,295	Ashby & Horner	11,240
Brass	12,277		

LONDON.—For fittings at the London & Westminster Bank, High-street, Kensington. Mr. F. W. Hunt, architect :—

Philips & Bisiker	£1,580	Dunn & Cadman	£1,470
B. E. Nightingale	1,490		

LONDON.—For an additional story at North-row, Oxford-street, W., for Messrs. Peal & Co. Mr. T. Chatfeild Clarke & Sons, architects :—

Bywaters	£1,029	Cox	£949
B. E. Nightingale	968	Ashby Bros.	887
Lawrence	939	Hall, Beddall, & Co.	844

LONDON.—For the erection of a school to provide accommodation for 800 children on the site in High-street, Plumstead, and also for the erection of a schoolkeeper's house, with a room underneath suitable for technical purposes, for the School Board for London. Mr. T. J. Bailey, Architect :—

Holloway Bros.	£22,317	Killby & Gayford	£19,618
B. E. Nightingale	21,869	J. T. Chappell	19,458
W. H. Lorden & Son	20,282	W. Downs	19,312
J. W. Hobbs & Co., Limited	17,797	Hart Bros.	19,058
J. Tyerman	19,650	Treasure & Son	18,606
		Kirk & Randall*	18,123

* Recommended by the Works Committee for acceptance.

LONDON.—For providing new offices for the British-street school, Millwall, and for relaying the drains, &c., for the School Board for London. Mr. T. J. Bailey, Architect :—

W. Gregar & Son	£1,434	J. Shillitoe & Son	£1,195
Killby & Gayford	1,400	Davis Bros.*	1,050
* Accepted by the Works Committee.			

LONDON.—For executing sanitary and drainage work at the Brentwood Industrial School, for the School Board for London. Mr. T. J. Bailey, Architect :—

Thomas Boyce	£695	J. T. Robey	£647
Atherton & Latta	660	F. J. Coxhead	497
E. Lawrance & Sons	658	W. Gregar & Son*	487
* Accepted by the Works Committee.			

LONDON.—For the erection of a school to provide accommodation for 800 children on the site in Choumert-road, Peckham, and for the erection of a school-keeper's house, with a room underneath suitable for technical purposes, for the School Board for London. Mr. T. J. Bailey, Architect :—

		Add for glazed bricks in dados, &c.
J. Mowlem & Co.	£18,812	£1,604
J. Tyerman	16,654	1,302
T. Boyce	16,475	749
W. H. Lorden & Son	16,192	592
S. & W. Pattinson	15,905	375
W. Downs	15,789	351
H. Lovatt	15,610	517
Lathey Bros.	15,546	630
J. W. Hobbs & Co., Limited	15,375*	321*
J. T. Chappell	15,295	656
Holloway Bros.	15,239	656

* Recommended by the Works Committee for acceptance.

LONDON.—For a new system of drainage, &c., at the Moreland-street School, Goswell-road, for the School Board for London. Mr. T. J. Bailey, Architect :—

Wm. Neil	£1,204	J. T. Robey (accepted by the Works Committee)	£927
F. McCormack & Son	1,048		

LONDON.—For providing and fixing heating apparatus, on the low-pressure hot-water system, for the enlargement of each of the four undermentioned schools which is now in course of erection, and also for extending the apparatus to the class-rooms in the old portions of the schools, for the School Board for London. Mr. T. J. Bailey, Architect :—

Montem-street School, Tollington Park.

John Grundy	£725 0 0	W. G. Cannon	£495 0 0
Purcell & Nobbs	568 10 0	Comyn, Ching, & Co.*	460 0 0
J. & F. May	515 0 0		

* Recommended by the Works Committee for acceptance.

Duncombe-road School, Upper Holloway.

John Grundy	£850	J. & F. May	£670
Purcell & Nobbs	767	J. Wontner-Smith, Gray, & Co.	618
T. Potter & Sons, Limited	750	Rosser & Russell	610
W. G. Cannon	709	J. Smeaton, Son, & Co.*	573
John Fraser & Son	696		

* Recommended by the Works Committee for acceptance.

Rotherhithe New Road.

John Grundy	£930 0 0	J. & F. May*	£565 0 0
J. Fraser & Son	682 0 0	W. G. Cannon†	548 0 0
T. Potter & Son Limited	598 0 0	J. G. Wagstaff	516 10 0

* Exclusive of stoves.
† Recommended by the Works Committee for acceptance.

Pocock-street, Blackfriars-road.

John Grundy	£600 0	W. G. Cannon	£485 0
J. Fraser & Son	572 0	Comyn, Ching & Co.	453 10
Purcell & Nobbs	536 10	J. Wontner-Smith, Gray, & Co.*	452 10
J. & F. May	510 0		

* Recommended by the Works Committee for acceptance.

LONDON.—For the erection of out-patients' department, Children's Hospital, Shadwell. Messrs. Hammack & Lambert, architects, Norgrove-buildings, 59, Bishopsgate-street :—

Mitchell	£8,000	Boyce	£7,120
Cox	7,440	Ashby & Horner	7,080
Hearle & Farrow	7,357	F. & F. J. Wood	6,804
Hall, Bedell, & Co.	7,185		

LONDON.—For the erection and completion of public baths and wash-houses, Camberwell-green, for the Commissioners. Messrs. Spalding & Cross, architects :—

Outhwaite	£25,975	Brass	£24,873
Coxen	25,897	Higgs	24,800
Shepherd	25,555	Allen & Sons	24,670
Kirk & Randall	25,472	Golding	24,634
Clifton	25,392	Jerrard	24,279
B. E. Nightingale	25,383	Balaam	24,073
Holloway	24,900	Turner	23,885

LONDON.—For the erection of Central Library, Camberwell, for the Commissioners. Mr. R. Whellock, architect :—

Grover	£15,470	Evans	£14,455
Marsland	15,250	Shepherd	14,395
Patman & Fotheringham	15,200	Downs	13,820
Chappell	15,125	Higgs	13,700
Dove Bros.	14,875	Holloway	13,690
T. Rider & Son	14,868	Holloway Bros.	13,600
Lawrence & Son	14,689	Richardson	13,528
Sawyer	14,653	Avard	13,270
B. E. Nightingale	14,493	Balaam	12,939
Perry & Co.	14,490	Allen & Sons	12,429

LONDON.—For the erection of premises, 1, Aldgate High-street Messrs. H. H. Bridgman & Goss, architects :—

Greenwood	£4,576	Perry & Co.	£3,997
Morten	4,464	Lawrence & Son	3,989
B. E. Nightingale	4,296	Dixon	3,923
Kirk & Randall	4,196	Toms	3,883
Neave & Neave	4,000	Lamble	3,787
Jocelyn, Young, & Co.	3,997	H. J. Williams	3,549

LONDON.—For the erection and completion of the Hampstead Synagogue and Schools, West End-lane, West Hampstead, N.W. Mr. Delissa Joseph, architect :—

S. Barnet	£17,250	Brass	£15,865
Grover & Son	16,918	Chappell	15,776
Morter	16,815	Perry & Co.	15,665
Holloway	16,529	Sabey	15,636
Sabey Bros.	16,529	Kilby & Gayford	15,420
E. Lawrance & Son	16,258	B. E. Nightingale	15,278
Patrick & Son	16,113	Kearley	15,198
Woodward	16,065	Allen & Son	14,537
Adamson	15,874		

LONDON.—For works required in diverting stone stairs, boundary walls, &c., at the Free Trade Wharf, Ratcliffe. Mr. Chas. Dunch, architect :—

Gentry	£3,340	J. Mowlem	£3,106
Harris & Wardrop	3,230	Munday & Son	1,967
B. E. Nightingale	3,185		

LONDON.—For pulling down old premises and erecting a roof over yard in rear of new factory, Valentine-place, Blackfriars-road S.E. Mr. W. H. Woodroffe, architect :—

Hart Bros.	£1,300	J. Hoare & Sons	£1,072
Hall, Beddall, & Co.	1,194	Holloway Bros.	1,050
Parker	1,140	B. E. Nightingale	1,025
Downs	1,123	Young & Lonsdale	1,010
Outhwaite & Sons	1,089		

LONDON.—For the erection of warehouse and workshops on the Old-street Estate, E.C., for Woolley's Trustees. Mr. H. Parsons, architect:—

	If concrete floors.	If wood floors.
W. Smith	£6,919 0 0	£6,655 0 0
Candler & Son	6,820 0 0	6,549 0 0
King & Son	6,689 0 0	6,466 0 0
Chappell	6,750 0 0	6,432 0 0
T. Rider & Son	6,586 0 0	6,258 0 0
Lawrence & Son	6,486 0 0	6,221 0 0
Perry & Co.	6,381 0 0	6,186 0 0
E. E. Nightingale	6,454 0 0	6,179 0 0
Downs	6,380 0 0	6,170 0 0
F. & H. Higgs	6,217 0 0	5,980 0 0
Co-operative Builders	6,085 0 0	5,832 0 0

LONDON.—For erecting printing premises, Bream's-buildings, Chancery-lane, E.C., for Messrs. Francis & Co. Mr. W. C. Street, architect:—

S. & W. Pattinson	£4,241	Holloway Bros.	£3,950
W. Downs	4,100	Dove Bros	3,875
Higgs & Hill	4,094	B. E. Nightingale	3,856
Colls & Sons	4,040		

LONDON.—For the erection and completion of new church and presbytery, Redcross-street, Southwark, for the Right Rev. Dr. Butt. Mr. F. A. Walters, F.S.A., architect:—

Goddard & Sons	£7,350	Gregory	£6,837
Bottrill	7,180	Longley	6,648
Stimpson & Co.	6,987	Smith & Sons	6,636
B. E. Nightingale	6,889		

LONDON.—For re-instating after fire to premises, 119, Queen-Victoria-street, E.C., for Mr. A. Davidson. Mr. W. Wimble, architect:—

Faulkner	£3,631	Lawrence & Son	£3,418
Scrivener	3,576	B. E. Nightingale	3,278
Hall, Beddall, & Co.	3,530	Ashby & Horner	3,227
Killby & Gayford	3,478	J. Morter	3,196

NEWPORT (Mon.)—For rebuilding the Congregational Chapel, Risca, Mon. Mr. Alfred Swash, architect, 3, Friar's-chambers, Newport, Mon. Quantities by architect:—

D. Parfitt	£1,473	Jno. Jones	£1,279
W. Price	1,448	Thos. Williams	1,150
T. G. Diamond	1,400	Edwyn Richards, Price-st., Newport (accepted)	1,100
Hughes & Pugh	1,350		

PAIGNTON (Devon).—Accepted for rebuilding the landing-stage at the Pavilion Pier, for the Company:—
R. Harris, Paignton £320 10 0

PAIGNTON (Devon).—For the erection of a Masonic Hall. Mr. George Soudon Bridgman, architect, Paignton:—

Drew Bros.	£735 0	Rabbich & Brown, Paignton (accepted)	£663 0
R. Harris	698 10		
C. Perrett	695 0		

RUNCORN.—For the erection of new chancel, St. Michael's Church, Runcorn. Mr. T. D. Barry, architect, Liverpool:—

Miller	£1,470	Raffle & Campbell	£1,217
Chappell Brothers	1,339	Macdermott	1,157
Laurie & Brimley	1,295	Nicholson & Clarke*	1,129
Bleakley	1,225	* Accepted.	

SIDCUP.—For building a detached dwelling-house at Sidcup, Kent, for Mr. W. R. Masaroon, J.P. Mr. J. Kingwell Cole, architect. Quantities by Mr. Edward S. Mansergh, 28, Mount-street, Grosvenor-square, W.:—

A. E. Faulkner	£2,100	B. E. Nightingale	£1,627
E. G. Covil	1,790	S. Chafen	1,620
G. Neal	1,685		

SNODLAND (Kent).—For the erection and completion of a church at Snodland, Kent. Mr. H. P. Monckton, architect:—

B. E. Nightingale	£2,720	Naylor	£2,509
Prior	2,703	Roome	2,376
Avard	2,610	Wallace	2,360
Hodge & Son	2,556	Langridge	2,294
Pye	2,555	Bishop	2,150
Clements	2,521		

SOUTHAMPTON.—For the erection of private residence, Winchester-road, Banister Park Estate, for Mr. R. Russell. Messrs. W. H. Mitchell, Son, & Gutteridge, architects, Southampton:—

W. Franklin	£1,645	A. Doggrell	£1,275
H. I. Sanders	1,550	S. Witt, Southampton*	1,115
T. J. Jukes	1,296	* Accepted.	

STOKE-UPON-TRENT.—For the erection of a detached house and out-offices at the top of Regent-street, Stoke, for Mr. H. G. Kirkham (all brickyard materials, floor-tiles, grates, chimney-pieces, &c., being provided). Mr. E. Penn, architect, Stoke-upon-Trent:—

Ball & Robinson	£795 10	Bradbury	£600 0
H. & R. Inskip	775 0	G. W. Hancock, Stoke*	550 0
T. R. Yoxall	664 0	* Accepted.	

STOKE-UPON-TRENT.—For alterations and additions to the "Eagle" Music Hall. Mr. Edwin Penn, architect, Stoke-upon-Trent:—
Ball & Robinson, Stoke (accepted) £504 0 0

STRATFORD.—For alterations and additions to the "Lord Henniker" public-house, The Grove, Stratford, E., for Mr. Geo. Cox. Mr. Fred. A. Ashton, architect, Stratford, E.:—

North Bros.	£2,428	H. Whitty	£1,840
Hearle & Farrow	2,134	J. & H. Cocks	1,834
W. Shurmur	2,097	Coulsell Bros.	1,822

SWANSEA.—For erecting nine houses and shops in Dyvatty-street, for Mr. Joseph Hall. Mr. H. C. Portsmouth, architect, Swansea. Quantities by the architect:—

Jenkins Brothers	£3,750 0	Thomas, Watkins & Jenkins	£3,200
Richards	3,441 0	Billings	2,900
Bennett Brothers	3,397 0	J. D. Williams	2,850
J. & F. Weaver	3,363 9		

SWANSEA.—For alterations and additions to the Ivorites Hotel, High-street. Mr. H. C. Portsmouth, architect, Swansea. Quantities by the architect:—
Bennett Brothers (accepted) £840 0 0

TODMORDEN.—Accepted for alterations and additions to Roomfield school, for the School Board. Mr. Jesse Horsfall, architect, Bridge-street, Todmorden:—
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Carpenter and Joiner, Joseph Sutcliffe, Todmorden.
Slating, Plastering, and Painting, Wrigley, Hebdenbridge.
Plumbing, &c., F. Davis, Todmorden.
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£3,029, 1s.
[Architect's estimate, £3,200.]

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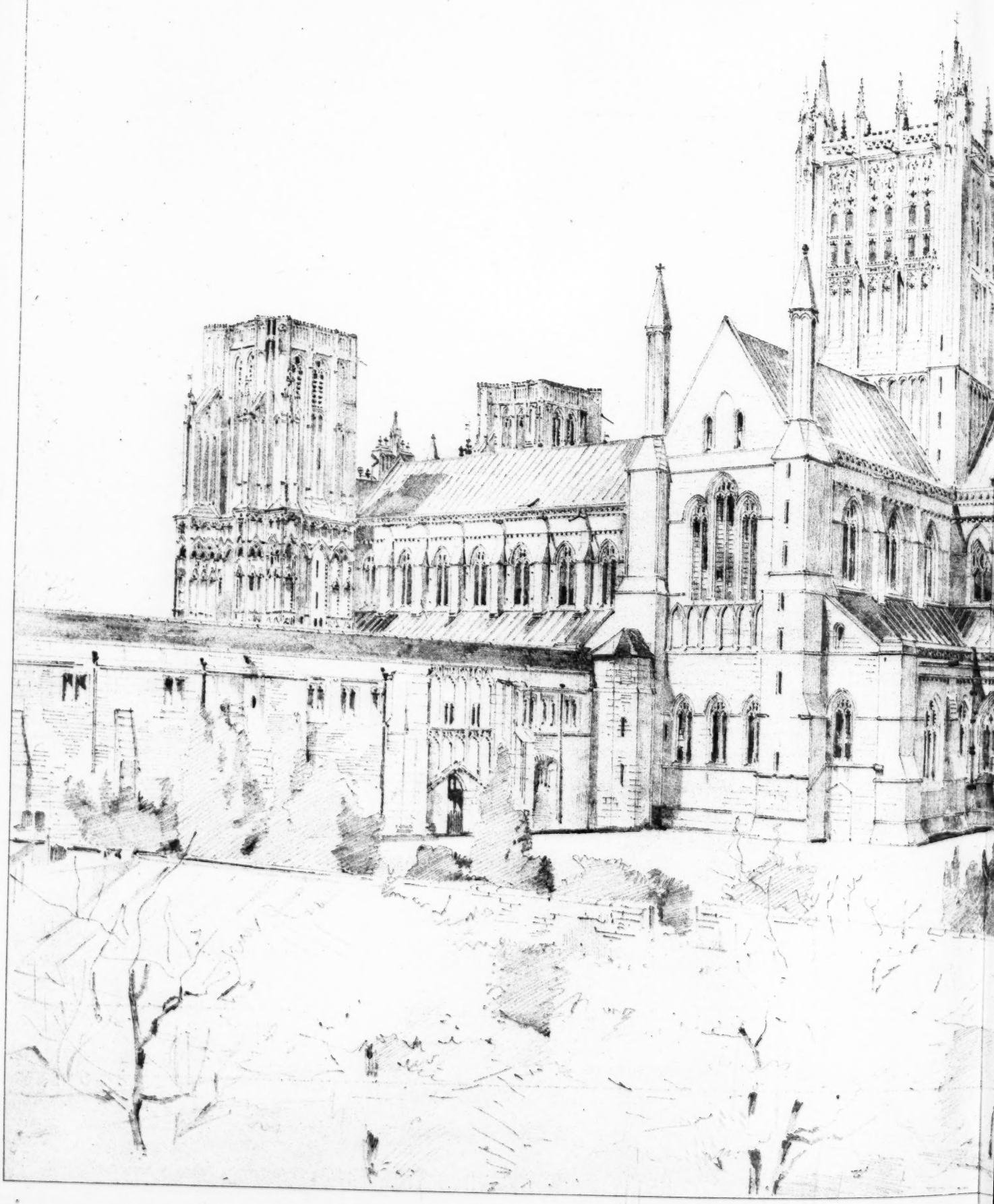

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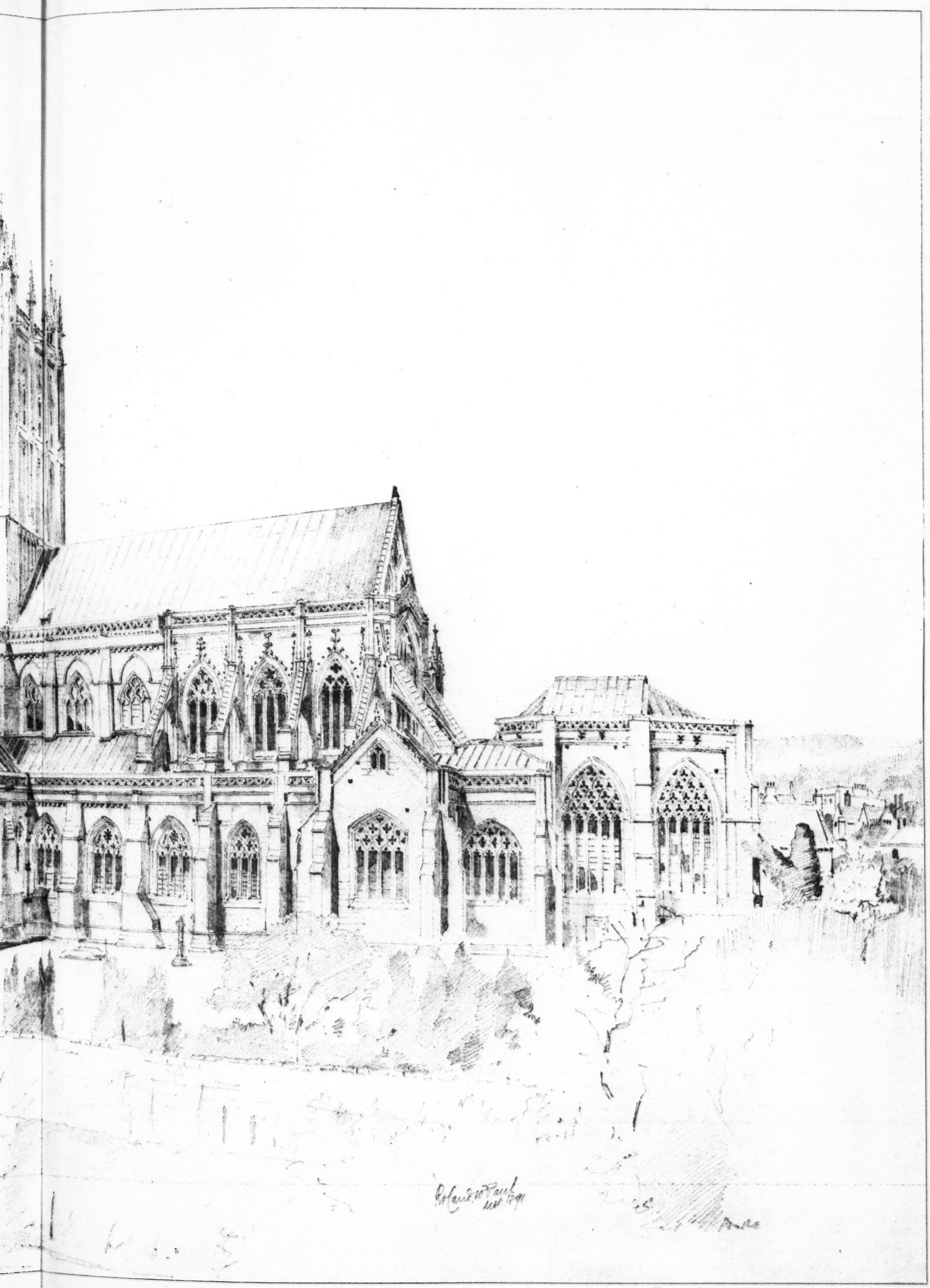

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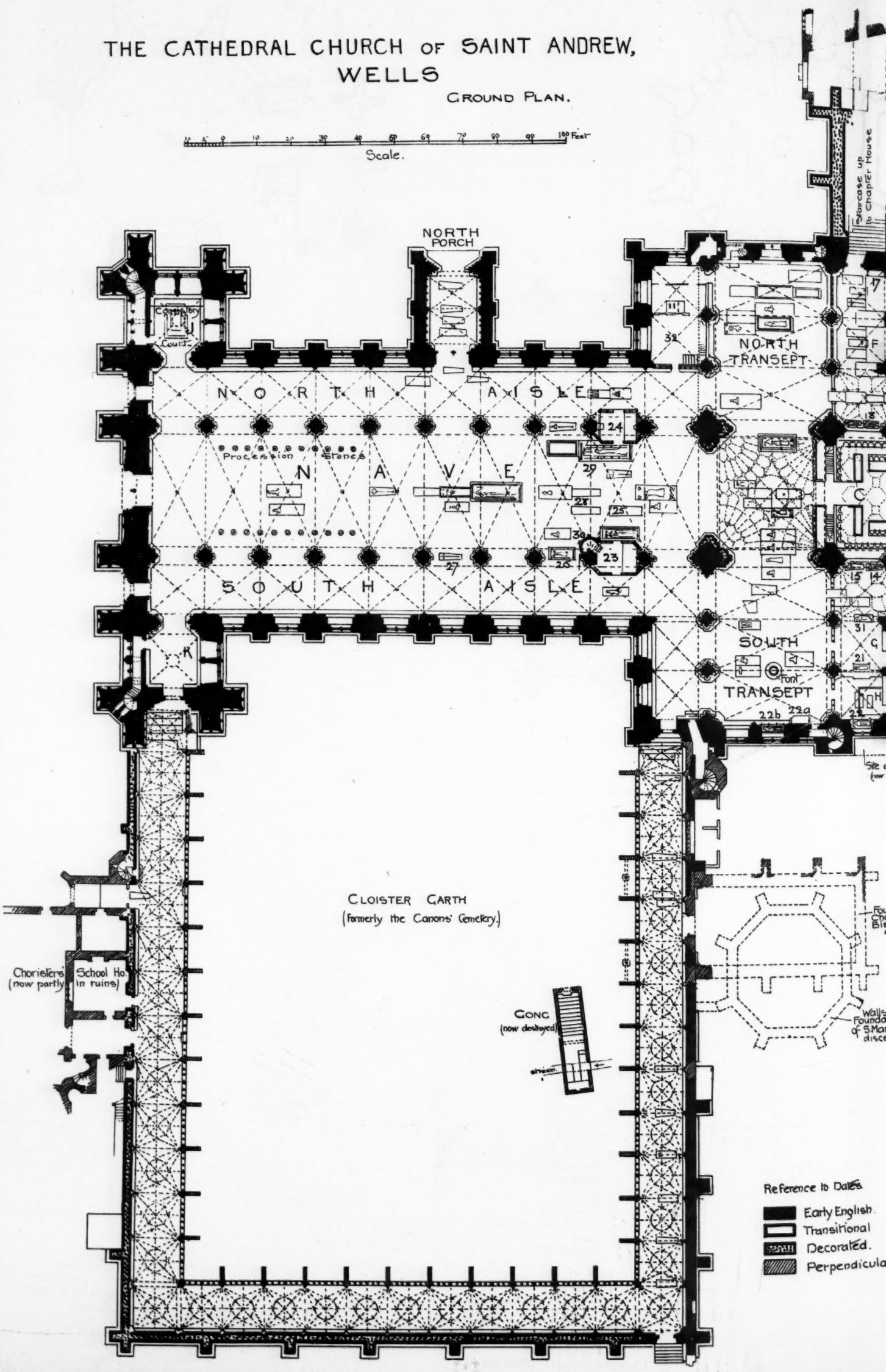
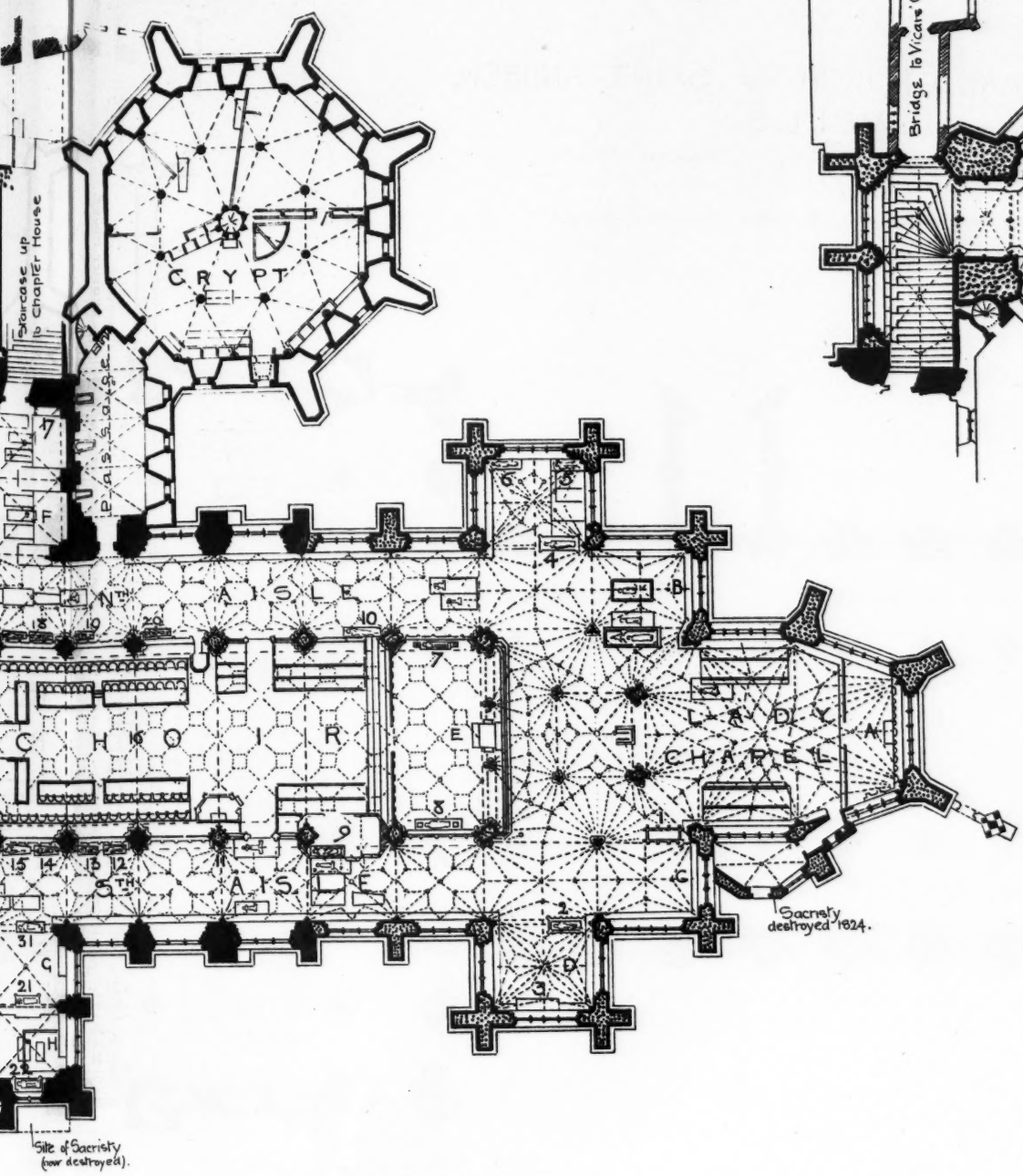
THE CATHEDRAL CHURCH OF SAINT ANDREW, WELLS

GROUND PLAN.

Scale.





Chapels & Altars.

A. Lady Chapel altar
B. St. Stephen.
C. St. Catherine & all Virgins.
D. St. John Evangelist.
E. High Altar.
F. Holy Cross.
G. St. Calixtus
H. St. Martin.
J. Holy Cross.
K. St. Edmund.

Monuments.

1 Bishop Bitton 1st
2 " Drokensford.
3 Dean Gunthorpe.
4 " Forrest.
5 Bishop Creighton.
6 " Berkeley
7 " Kidder
8 " Still
9 " Beckington.
10 " Ralph de Salopia.
11 " Lake.
12 " Bitton 2nd
13, 14, 15 Effigies of Early Bishops.
16 Site of Tomb of Jocelin de Welles.
17 Bishop Cornish
18, 19, & 20 Early Effigies.
21 Dean Husee.
22 Chancellor John Storthwaite.
22a Viscountess Lisle
22b Bishop Wm. de Marchia.
23 Dr. Hugh Sugar's Chantry.
24 Bishop Bubwith's "
25 " Knight.
26 " Ergum.
27 " Freas
28 " Beckingtons Executors
29 " Haselshawe.
30 The Nave Pulpit
31 Bishop Harewell.
32 Clock room & Vestry.

Roland A. Paul del. 1891.
From Carter's plan now in the possession of the Society of Antiquaries; with additions from other sources.

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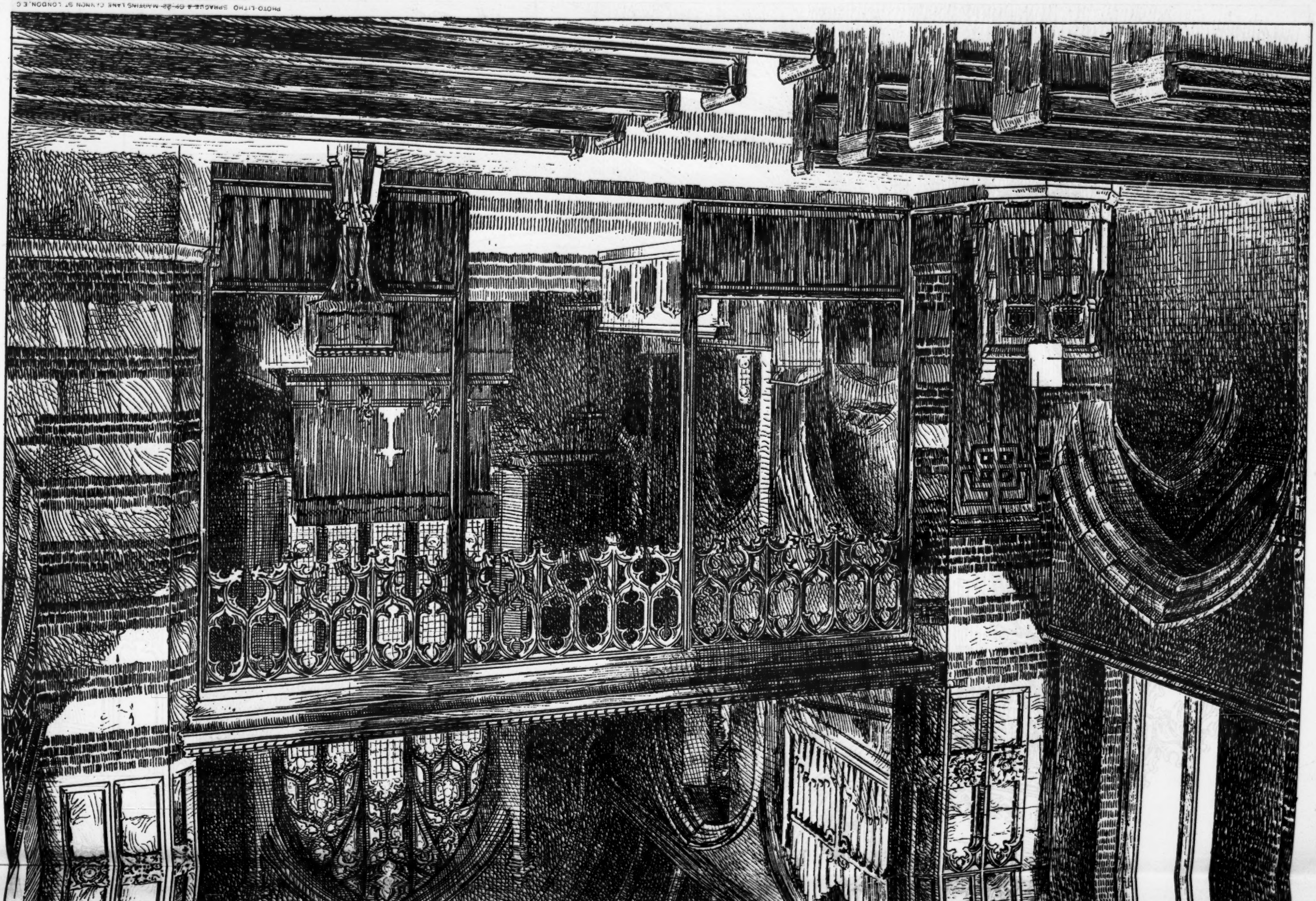

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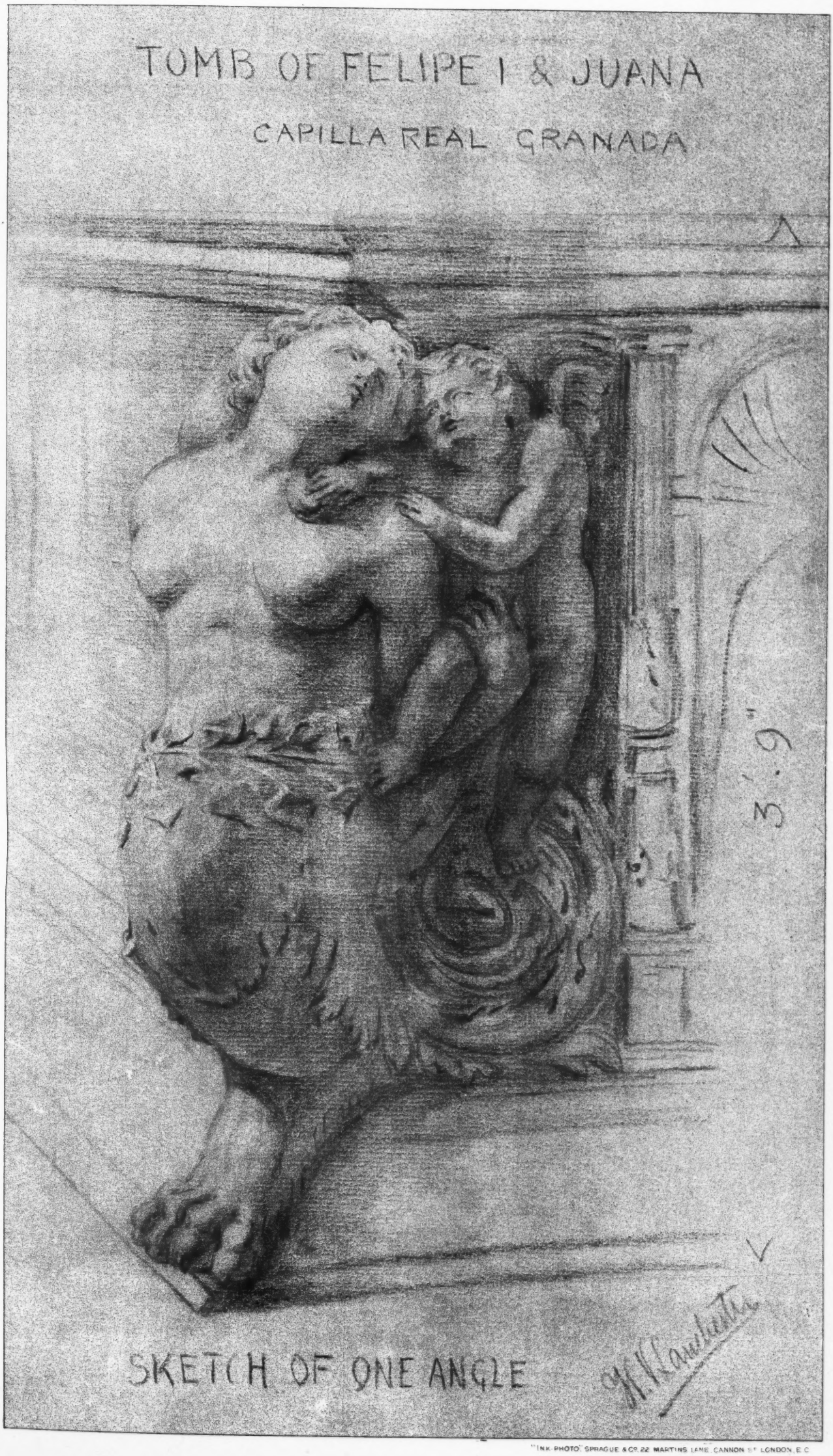

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